NOVEMBER 16, 1959

PAPER TRADE JOURNAL

ALKALINE PULPING . . .
conferees attend Jax tech sects, intrigued by primary defibering saving 50 per cent refining $'s

WORLD DEMAND, FAO . . .
says, for pulp, paper, board to increase 100+ per cent by 1975, $1.5 billion expenditures needed.

YOU GET
TECHNICAL
SERVICE

...when Gottesman enters the picture!
The Gottesman Organization knows what is important in pulp... including your production problems. Technicians on the staff of our pulp suppliers stand ready to assist our customers whenever necessary. This is but one of the many "fine points" of service we provide!

Established 1886

THE GOTTESMAN ORGANIZATION

GOTTESMAN & COMPANY, INC. • CENTRAL NATIONAL CORPORATION
CENTRAL NATIONAL COMMERCIAL COMPANY, INC.
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Gottesman & Company Aktiebolag, Stockholm, Sweden
Central National-Gottesman Limited, London, England
Representatives in 55 Leading World Markets

Editorial Dept.
University Microfilms, Inc.
313 N. First St.
Ann Arbor, Mich.

This Man Can Help You
Get More Efficiency From Plant Equipment

Efficiency is what you want from your plant equipment, and the Dowell engineer can help you get it. Plants in every major industry—for example, oil refining, chemical, public utility, steel and paper—are getting productive results from *economical* chemical cleaning by Dowell.

To remove scale and sludge from your process equipment, boilers, tanks and piping, Dowell engineers provide knowledge and tools you can get from no other chemical cleaning service. You get cleaning knowledge gained from developing and working with the rigorous cleaning standards of the missile program at Cape Canaveral. You get new tools and chemicals from a continuous research program. For example, Dowell recently introduced a new high-velocity jetting device for cleaning tube bundles.

And you get 20 years' worth of experience in all types of industry from Maine to California. Plant operators find it pays to call Dowell on even the smallest job. But they also know that Dowell has the manpower and equipment to clean the largest and most complex systems.

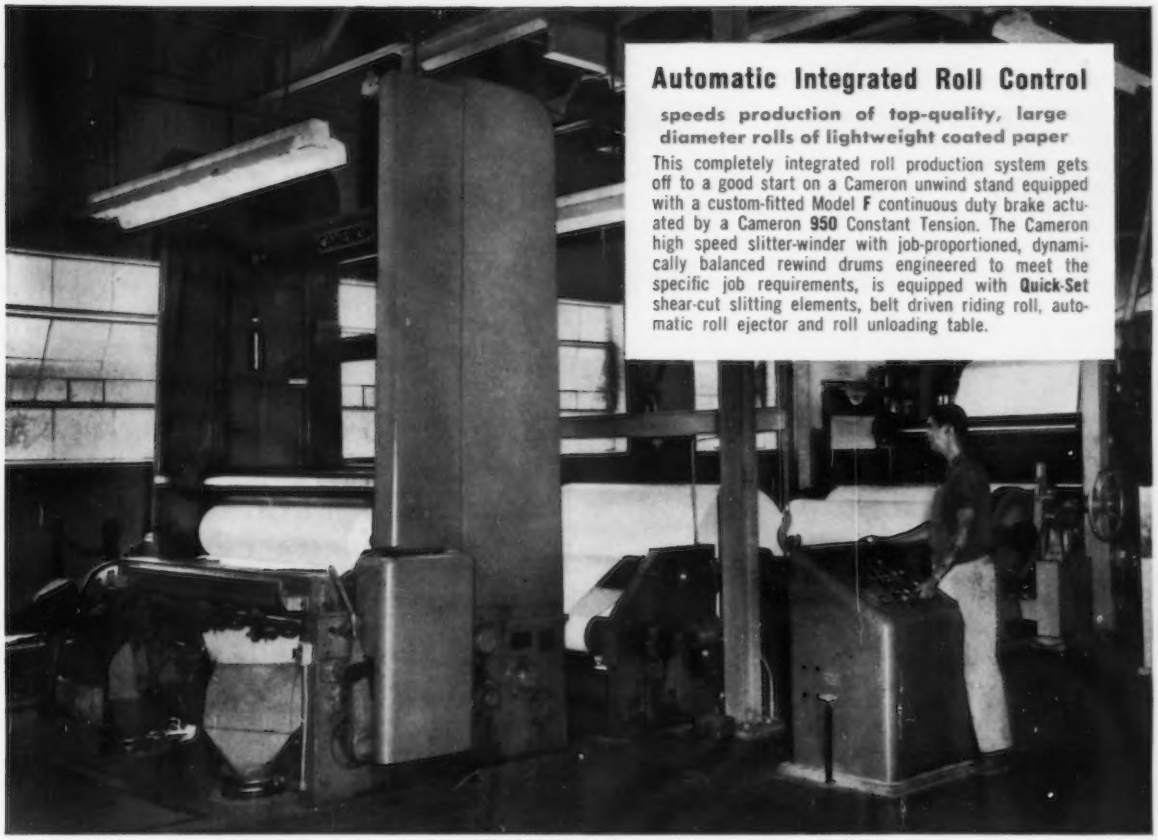
The Dowell engineer takes pride in doing your job so well that you will continue to call him for your cleaning work. This desire to do your job well covers every facet of service—from seeing that you get solvents exactly as specified, to supervising Dowell's full-time safety program. Every precaution is used to protect your personnel and equipment.

Prompt service and detailed information is yours from any of the 165 Dowell stations and offices. Get more efficiency—economically—with the help of the largest, the oldest, the most experienced chemical cleaning service—Dowell, Tulsa 1, Oklahoma.

Chemical cleaning service for all industry

DOWELL

DIVISION OF THE DOW CHEMICAL COMPANY



Automatic Integrated Roll Control

speeds production of top-quality, large diameter rolls of lightweight coated paper

This completely integrated roll production system gets off to a good start on a Cameron unwind stand equipped with a custom-fitted Model **F** continuous duty brake actuated by a Cameron **950** Constant Tension. The Cameron high speed slitter-winder with job-proportioned, dynamically balanced rewind drums engineered to meet the specific job requirements, is equipped with **Quick-Set** shear-cut slitting elements, belt driven riding roll, automatic roll ejector and roll unloading table.

Cameron Automatic Roll Control, perfectly integrated from unwind to finished rolls, assures top-quality slitting and rewinding at

5000 FPM ON LIGHTWEIGHT COATED PAPER

. . . staying well ahead of the new high speed coating operation at Crocker Burbank Company's Number 3 Mill, Fitchburg, Massachusetts.

New high speeds are multiplying the risks in fast new printing and converting operations. Printers and converters can no longer afford the cost of poor quality rolls, web breaks, damaged materials, or rolls that peter out too quickly on long runs. There is an increasing need for perfect, clean-cut, large diameter rolls of uniform density. That is why leading finishing room superintendents agree on this point – the modern, high speed, roll production system must be custom-engineered by specialists to provide automatic, integrated roll control from unwind to finished rolls.

Write now for literature on Cameron high speed slitter-winders, unwinds and web controls for paper mills and finishing rooms.

Cameron Machine Company, Franklin Road, Dover, N. J.
Canada: Cameron Machine Co. of Canada, Ltd., 15 Hatt St., Dundas, Ontario
France: Batignolles-Chatillon, 5 Rue De Monttessuy, Paris (7e) France

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a team of specialists

AA-370

53 years devoted exclusively to the design and manufacture of slitting, roll winding, unwind and web control equipment.

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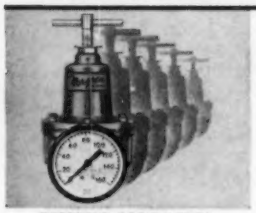

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PAPER TRADE JOURNAL

PUBLISHED WEEKLY SINCE 1872

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REMEMBER THESE DATES

December 1-2. National Council for Stream Improvement, Inc., Pulp and Paper Industrial Waste Conference, Edgewater Beach Hotel, Chicago, Ill.

January 26-29. Technical Section, Canadian Pulp and Paper Ass'n., Queen Elizabeth Hotel, Montreal. Note meeting starts Tuesday.

February 22-25. Paper Week in New York.

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Choose from the Complete Line of *Clay Coating Machinery*

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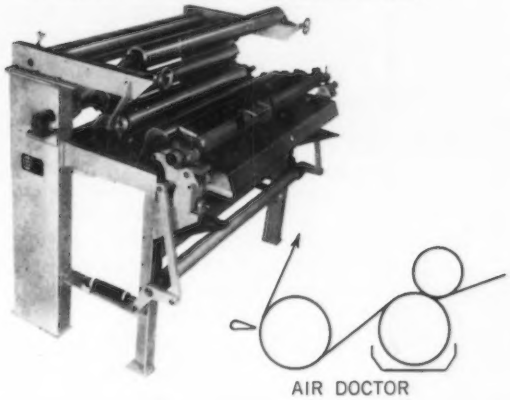
Applied to on-the-machine operation on board and for off-machine on all grades of paper and board

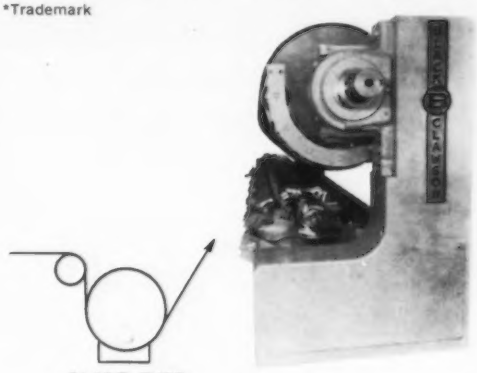


AIR DOCTOR

Flexiblade* Coater

Black-Clawson's new patented blade type coater delivers smooth coating to paper or board at full range of speeds

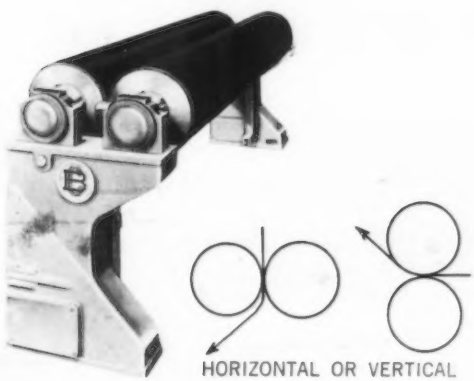
*Trademark



BLADE TYPE

Size Press

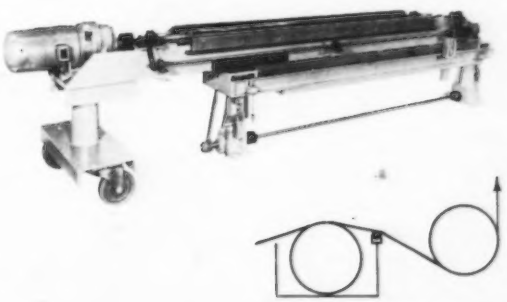
Compact, advanced design. Precision nip pressure control for uniform distribution of coating materials



HORIZONTAL OR VERTICAL

Magnetic Metering Bar Coater

For use in dryer section of board machines. Features newly patented magnetic method of holding rotating bar, and roll out feature for cleaning and maintenance



METERING BAR

Write for "Messenger No. 360" which outlines Black-Clawson's developments for machine coating.

The Black-Clawson Company
Dilts Division, Fulton, N. Y.

Convert with Confidence

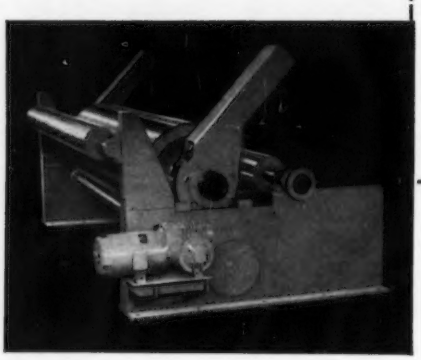
BLACK-CLAWSON

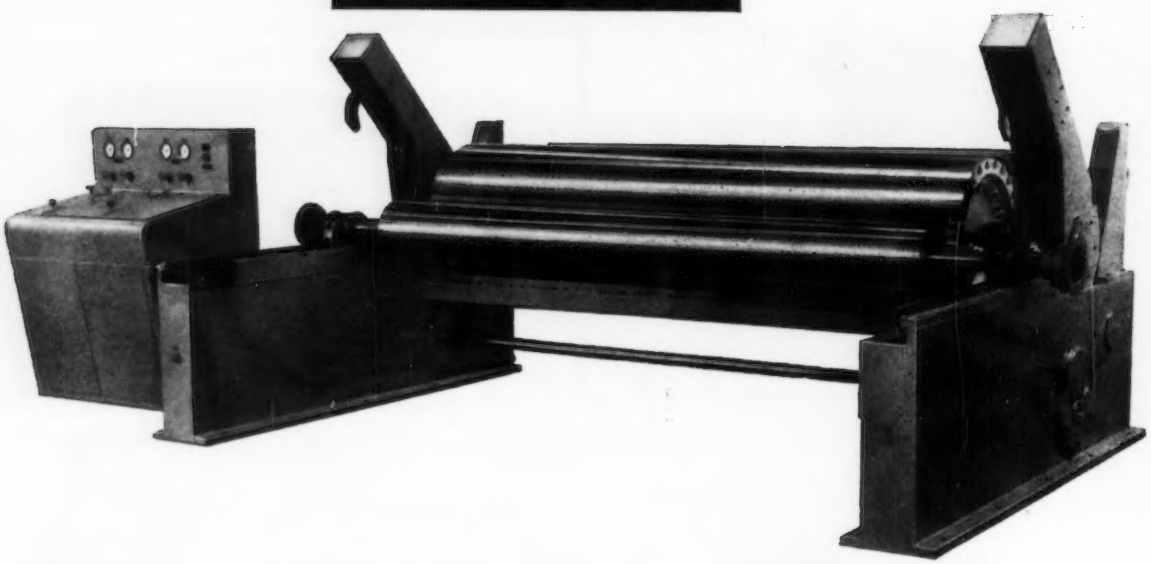
Why settle for less than uniform tight rolls?

That's what the new Manchester hydraulically controlled uniform speed reel gives you—tight rolls on every run!

CHECK THESE IMPORTANT DESIGN FEATURES:

- Winds rolls to 74" diameter or larger.
- Compact hydraulically powered unit permits centralized control of the winder by one operator.
- Automatic transfer of finished rolls to storage track.
- Primary arms and secondary bearing saddles motor operated to assure uniform roll transfer from starting position to finished winding position.
- Automatic preset tension control throughout entire operating cycle.
- Reel cores hydraulically loaded against winding drum in both primary and secondary positions.
- Drum contact loading can be adjusted during winding operations; also can be varied independently on front and back side.
- Extra heavy cast iron framing—ruggedly designed throughout.





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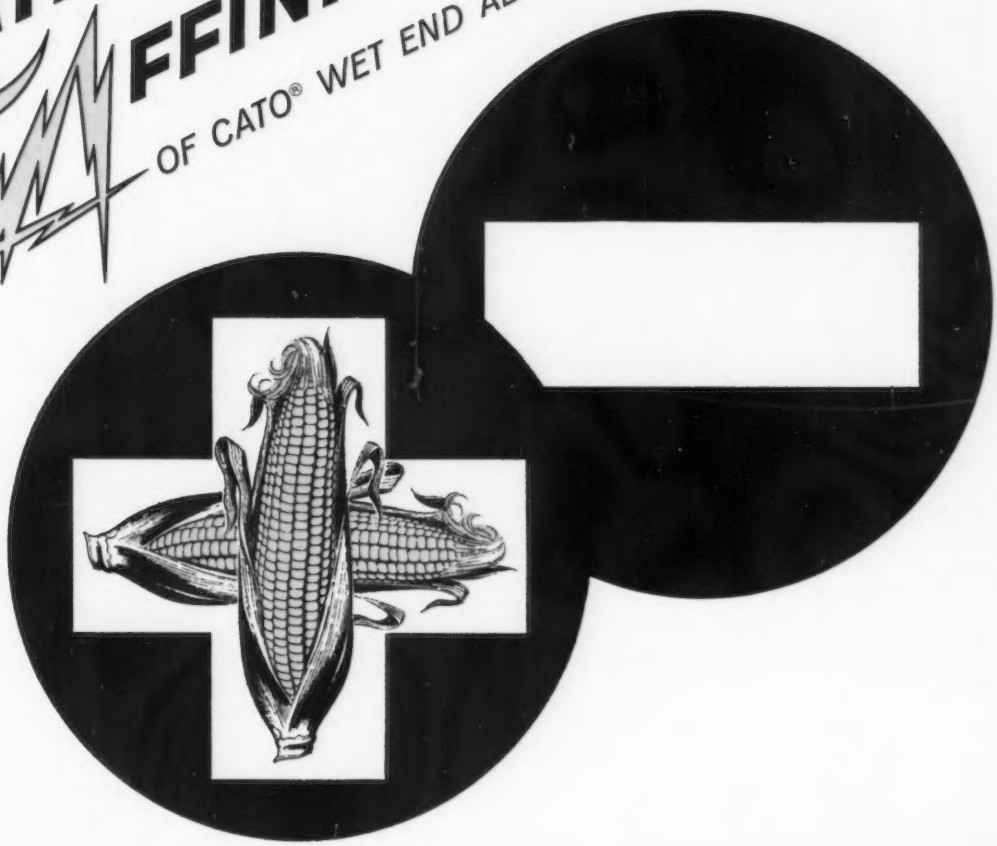
MIDDLETOWN, OHIO

MMC

Specialists in Designing and Building Paper Mill Machinery

CATIONIC AFFINITY

OF CATO® WET END ADDITIVE



TRIPLES ADVANTAGES IN WET END ADDITIONS

CATO leads to unusual improvements. Its unique starch molecule carries cationic groups. A strong electro-chemical affinity for cellulose fiber, fillers, organic additives and other anionic substances results. This benefits paper making, not one, but in *three* major ways. First, with greater strength. Second, with increased pigment retention—and increased ash content without loss of strength. Third, by replacing a multiplicity of additives.

In addition, retention of sizing materials, retention of anionic synthetic polymers, faster drainage and other benefits are often realized.

CATO has an amazing history of success. At one mill, with higher mullen and faster machine speeds. At another with increased strength and a lower cost pulp mixture. At another, with increased pick, fold and mullen and lower starch costs. At another, with increased ash content and higher opacity. And so on.

CATO is highly effective with sulfite, soda and groundwood pulp. Also with kraft, semi-chemical and reclaimed stocks. Additions are small because it is virtually 100% retained in the sheet. For full information, contact your nearest National office.

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National STARCH and CHEMICAL CORPORATION

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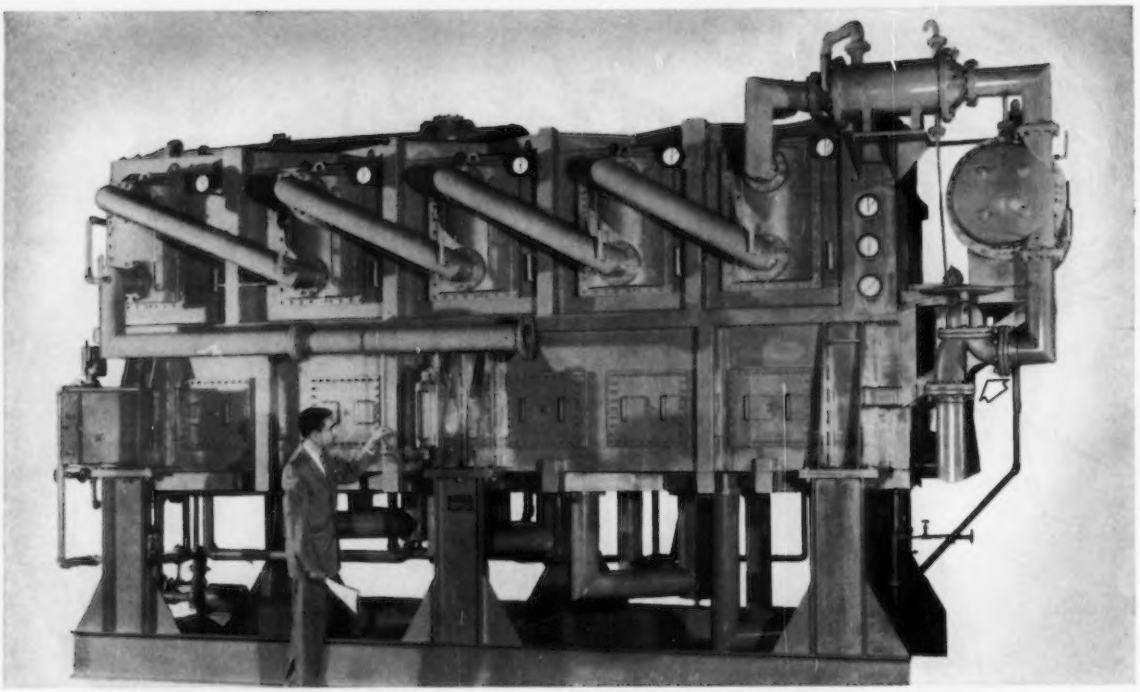


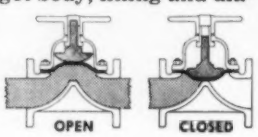
ON LAND At Salinas, a tourist center in Ecuador, this Cleaver-Brooks Flash Evaporator delivers 50,000 gallons of pure, distilled water every 24 hours. It is equipped with two 6", rubber lined, weir-type Grinnell-Saunders Diaphragm Valves — only one of which can be seen from this view.

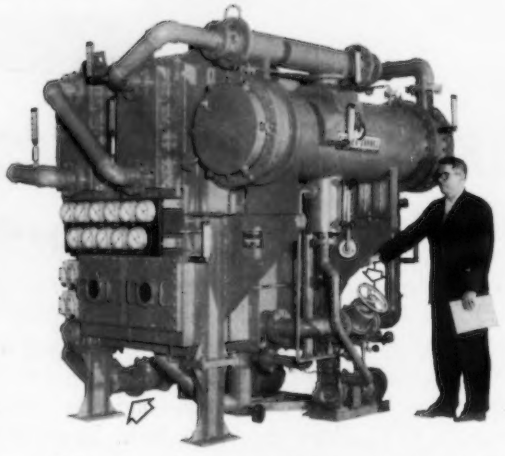
Grinnell-Saunders Diaphragm Valves help convert salt water to fresh water

You can convert sea water to fresh water, in abundant supply, on land . . . or on shipboard, with flash evaporators made by Cleaver-Brooks Special Products, Inc., Waukesha, Wisconsin. Grinnell-Saunders Diaphragm Valves are used as original equipment on these distillation units because they offer positive, leak-tight closure; flow control in throttling position; corrosion-resistance.

You'll find Grinnell-Saunders valves widely used in other fields, too . . . petroleum, papermaking, chemical, food, compressed air . . . to mention a few.

The operating principle of the Grinnell valve is the feature which makes it so adaptable. The diaphragm lifts high for streamline flow in either direction; seals tight for positive closure against grit, scale, solid matter, pressure or vacuum. Bonnet mechanism is completely isolated at all times from the fluid in the line by the diaphragm, preventing corrosion and contamination. Smooth passage, without pockets, eliminates trapping of solids and reduces frictional resistance. And you can get body, lining and diaphragm materials to meet your particular service conditions. Get *all* the facts. Write Grinnell Company, Providence 1, R. I.





AT SEA The nuclear powered NS Savannah has two 16,000 gallons-per-day Cleaver-Brooks distillation units to supply the entire water requirements of crew and machinery. Each unit has two 4" Grinnell-Saunders Straightway Valves of ductile iron.

GRINNELL

Pipe, Fittings, Valves, Hangers, Heating and Piping Supplies
Branch Warehouses and Distributors From Coast To Coast

Illustration courtesy of The Curtis Publishing Company

Fidelity in Offset... with RHOPLEX

The subtle tones and detail of this illustration, printed by four-color offset lithography, are reproduced in true value because of the paper on which it is printed . . . paper which uses RHOPLEX all-acrylic emulsion as the binder in its coating.

Sharpness of halftone dot definition, freedom from picking, and exceptional varnish holdout are features which appeal to the printer who demands quality of reproduction with high speed presswork.

Papermakers like the ease with which RHOPLEX can be used for on or off-machine coating by trailing blade, air knife or roller coater. They can achieve high coatings weights and still enjoy high speed operation because coatings as high as 65 percent solids still have good handling viscosity when RHOPLEX is the binder.

For full information about RHOPLEX B-15 and RHOPLEX B-60A write for your copy of "RHOPLEX Acrylic Emulsions in Paper Coatings".

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In the six states of Virginia, North Carolina, South Carolina, Georgia, Alabama and Florida, more than 113,000,000 acres, or 60% of the total land area, are in growing forests, insuring a continual and abundant supply of low-cost pulpwood. Numerous streams afford an abundance of water for pulp and paper operations.

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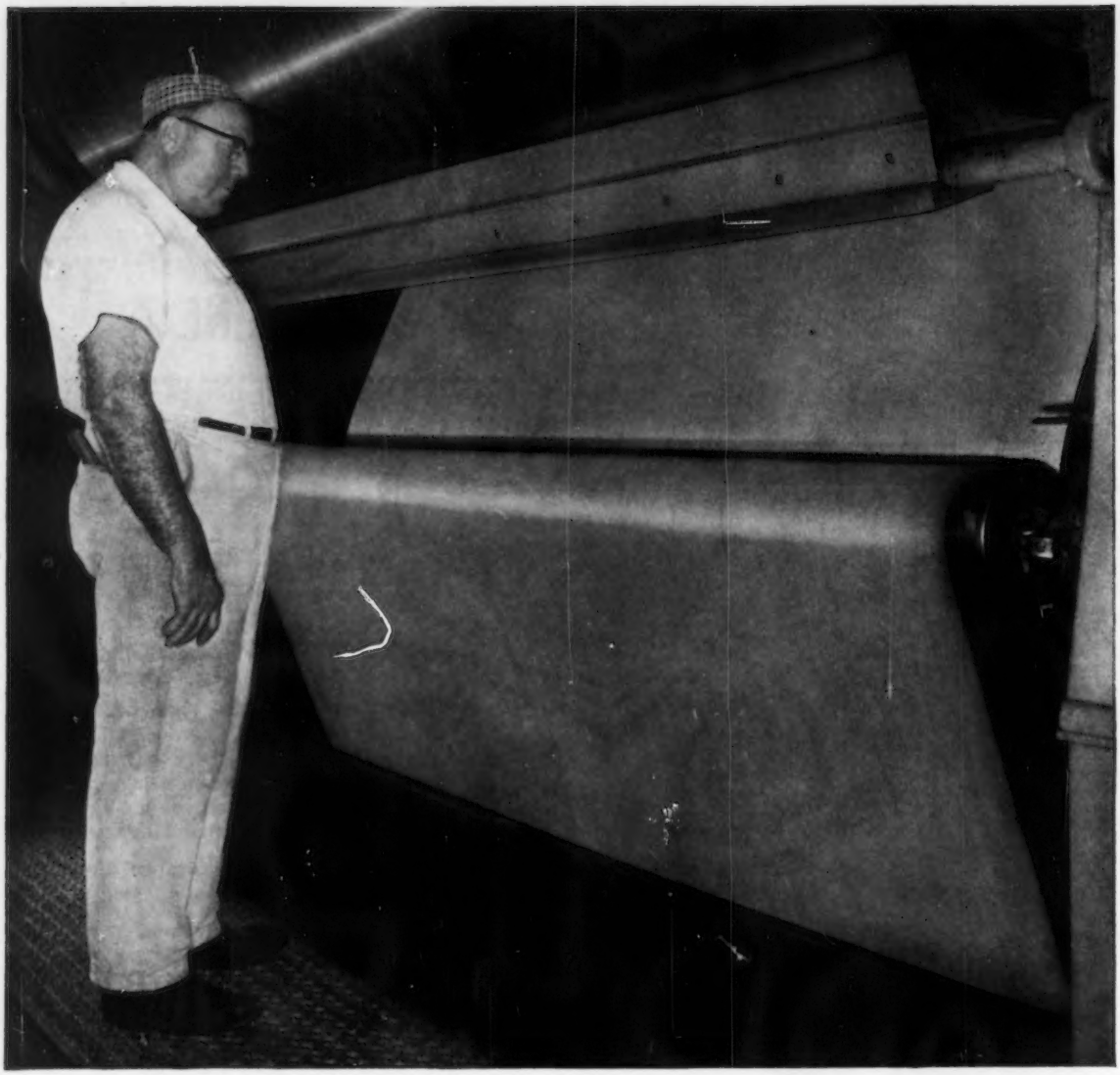

REPAID INVESTMENT—The Albemarle Paper Manufacturing Company of Richmond, Virginia, makes a flame-resistant paper which—because of its chemical coating—has an extremely erosive effect on the average dryer felt. In certain machine positions, for instance, dryer felt life was averaging less than 30 days. In an attempt to find a felt with a greater chemical resistance, Albemarle experimented with a variety of fabrics and blends. None, however, provided the necessary durability until Mount Vernon engineers came up with a specially-designed felt made of 100% Dacron*. The Dacron felt has now been in operation almost continuously in these particular positions for over nine months. Despite its relatively high initial cost, the new felt has cut dryer felt costs per ton of paper to less than one-third of their former costs.

This is another example of how fabrics made by Mount Vernon Mills, Inc. and the industries they serve, are serving America. Mount Vernon engineers and its laboratory facilities are available to help you in the development of any new fabric or in the application of those already available.

PRE-STRETCHED – All Mount Vernon dryer felts are available pre-stretched and pre-shrunk, with or without clipper seams.

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Big Difference
In Industrial
Fabrics

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A LEADER IN INDUSTRIAL TEXTILES

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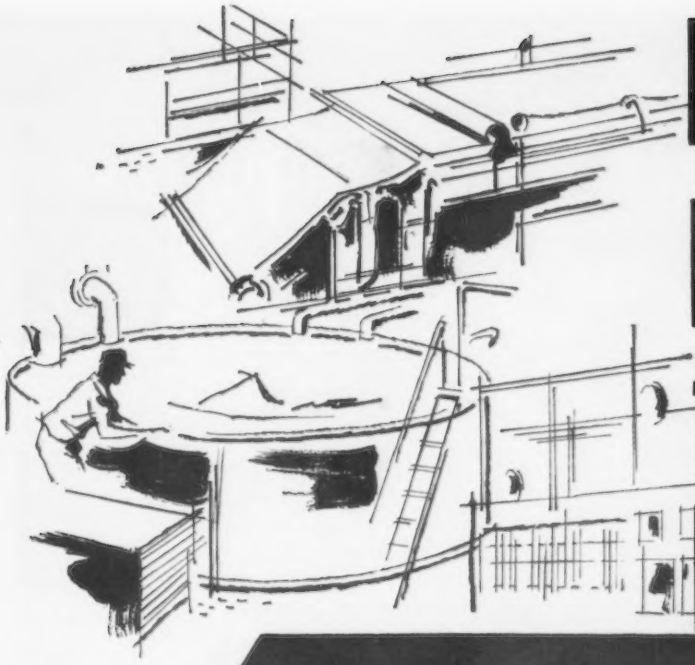
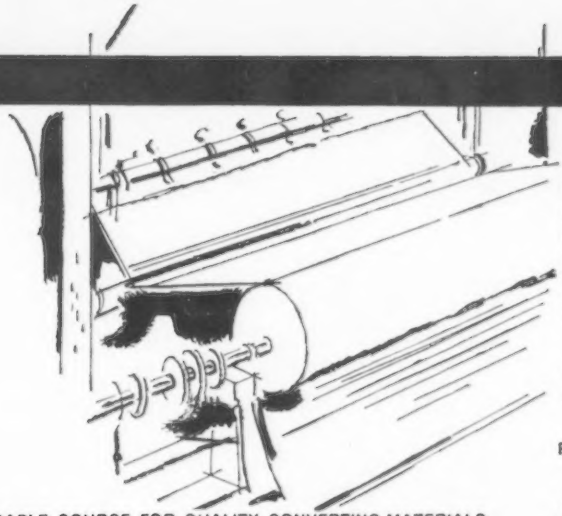


Buyer's Memo to Himself:

Must improve quality try Marathon



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Quality control is a round-the-clock operation at Marathon. Automatic and foolproof—to far surpass your most rigid demands—Marathon facilities, manned by trained technicians, guarantee that anything made at the mills of Marathon is the best of its kind.

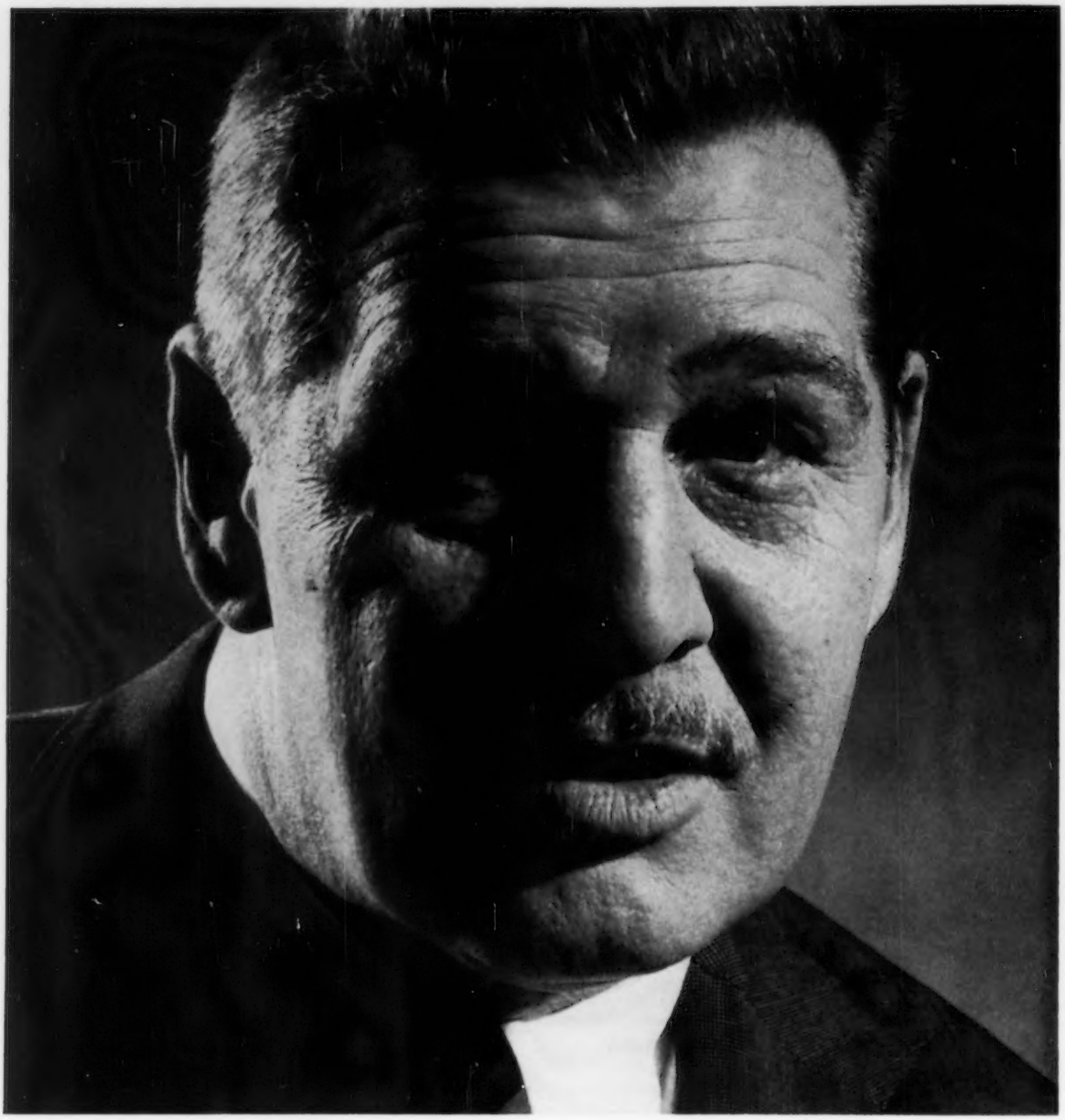
Keep Marathon in mind for pulp, printing papers, paperboard or specialty materials.

Pulp, Paper and Paperboard Department

marathon

A Division of American Can Company

MENASHA, WISCONSIN



"How do I buy TiO_2? As mill superintendent, I have to O.K. orders for about 500 tons of TiO_2 yearly for our lightweight papers. I don't take chances—I specify Du Pont Ti-Pure*. Why? Because it's backed by a great service organization, is always high in quality and always delivered promptly. I hear Du Pont is expanding production facilities for 'Ti-Pure', too. That's another reason why I can count on a steady supply."

(Based on an actual conversation between a Du Pont Representative and a customer.)

▶Talked to *your* Du Pont Pigments Representative lately? He'll be glad to point out the "extras" you get with Du Pont "Ti-Pure" titanium dioxide pigments. Call him today! E. I. du Pont de Nemours & Co. (Inc.), Pigments Department, Wilmington 98, Delaware. In Canada: Du Pont of Canada Limited, P.O. Box 660, Montreal, Quebec.

*Du Pont's trademark for its titanium dioxide pigments

TI-PURE®
Titanium Dioxide Pigments

DU PONT
REG. U.S. PAT. OFF.

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...THROUGH CHEMISTRY

Teamed to make Paper Progress Possible

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Two MURCO Pulpwood Slashers
One MURCO Rechipper

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One MURCO 88" 10-knife Pulpwood Chipper
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CHARMIN PAPER PRODUCTS CO., Green Bay, Wisconsin
One MURCO Pulpwood Splitter
One MURCO 88" 10-knife Chipper
One MURCO Roll Lowering Table

MARINETTE PAPER CO., Subsidiary of Scott Paper Company, Marinette, Wis.
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Now...A Packless Metering Pump*

SEND for our new specification sheet with full data on the Masterline Packless Metering Pump #903

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- Packless Liquid End Construction
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- Plus All Regular Masterline Features: Simplified crank drive, pre-tested accuracy, sturdy construction, separate motor and speed reducer, adaptable for automatic or remote control . . . everything to insure dependable operation at lowest maintenance cost.

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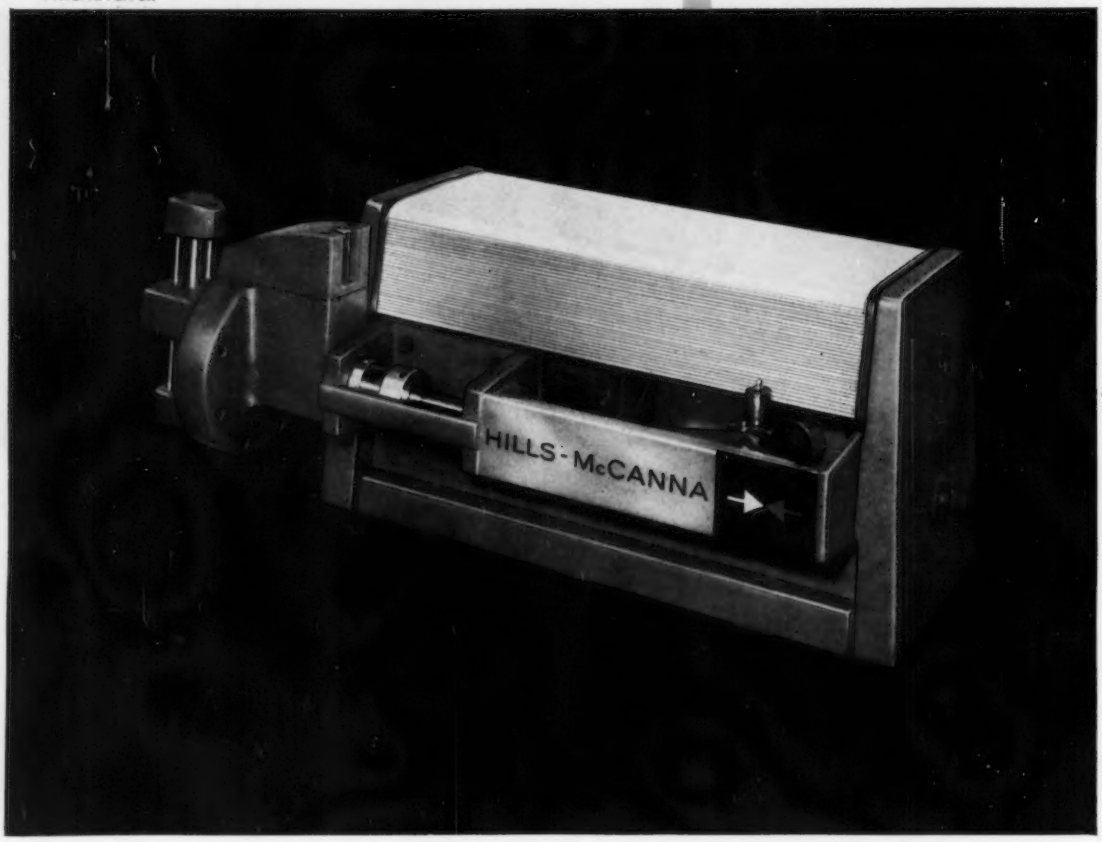

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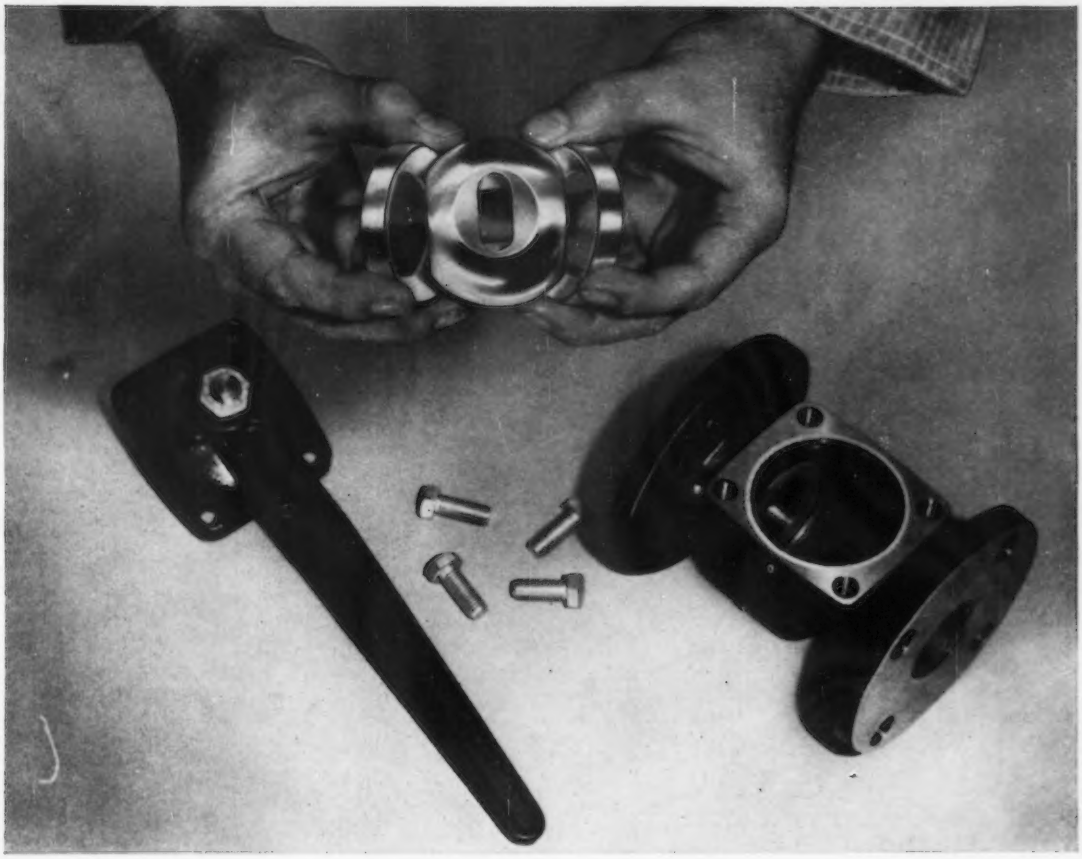

Now a BALL VALVE* with all the features you've wanted

Thirty years of leadership in valve manufacture now brings you the Hills-McCanna Ball Valve! It offers every advanced feature to help you cut costs, step up production, reduce maintenance, and improve product quality.

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Save money!...solve valving problems ...send for free booklet describing the complete line of Hills-McCanna Ball Valves. Send for your copy of booklet #1100.

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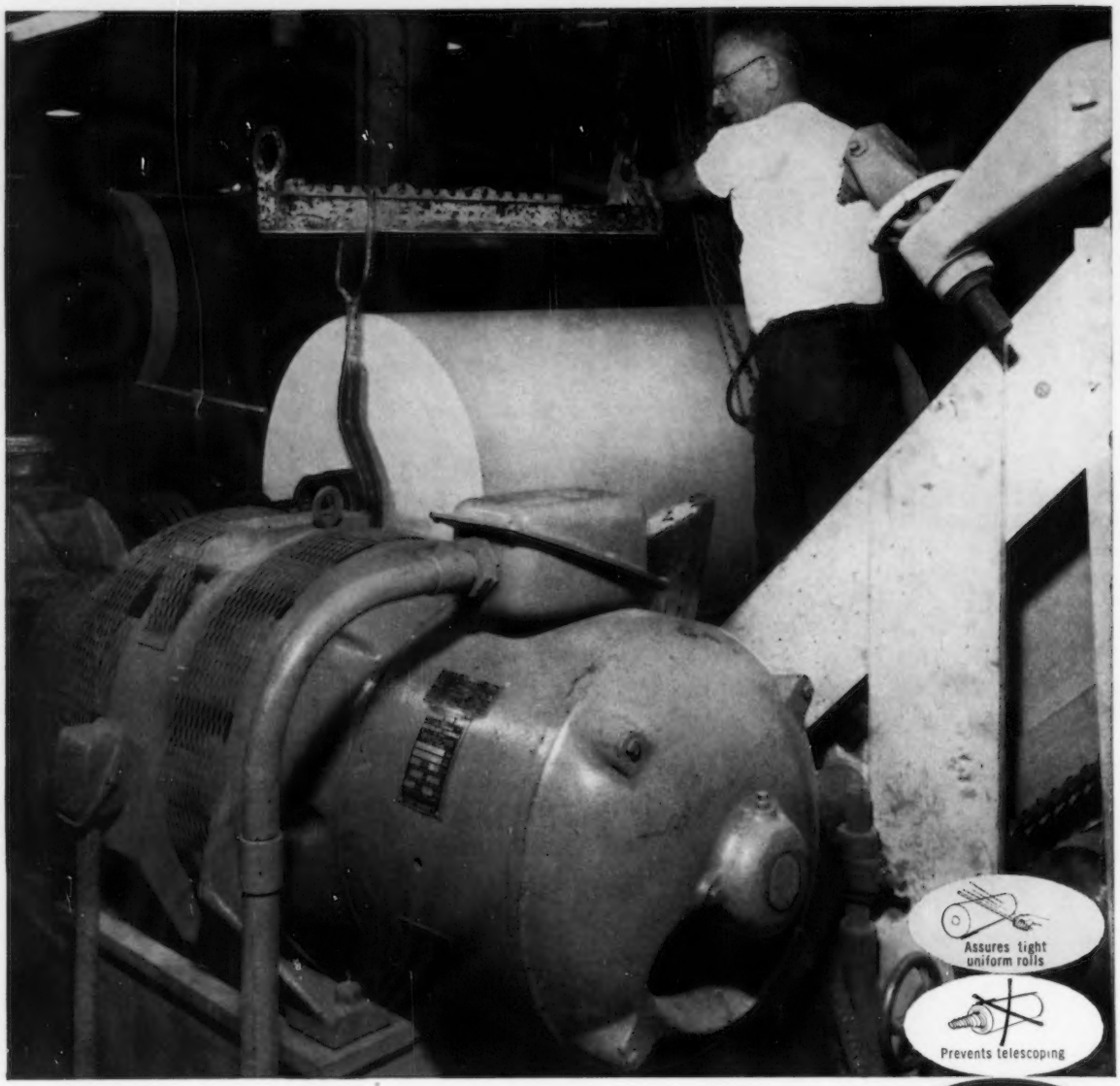

A dollar-saving wind-up drive

Louis Allis Ajusto-Spede® provides adjustable speed from A. C. power supply

Wind-up drives with precise tension control can reduce your "broke" and down-time.

Louis Allis Ajusto-Spede® drives have proven successful in eliminating the problems encountered with wind-up drives in all the paper industries from manufacture through printing and converting, and on all types of materials from tissue to board.

Here's what this versatile drive can offer you:

- 1 to 75 h. p.
- Linear speed range from 100 to 2,000 fpm
- Roll build-up ratios up to 15:1
- Controlled tensions from ½ lb. to 10 lbs. per inch of width
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A phone call to your local Louis Allis District Office will bring a skilled Louis Allis sales engineer. He'll gladly study your problem and advise — with no obligation. Or write for Bulletin 611E, "Ajusto-Spede Drives." The Louis Allis Co., 467 E. Stewart Street, Milwaukee 1, Wisconsin.

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MANUFACTURER OF ELECTRIC MOTORS AND ADJUSTABLE-SPEED DRIVES

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Clean, crisp-appearing correspondence—the sort that commands attention on a busy desk—is assured when the paper contains Glidden Zopaque.

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Write now for full information on how Glidden Zopaque Titanium Dioxide can help you in making superior paper products.

QUALITY Glidden PRODUCTS

FINEST PIGMENTS FOR INDUSTRY

The Glidden Company
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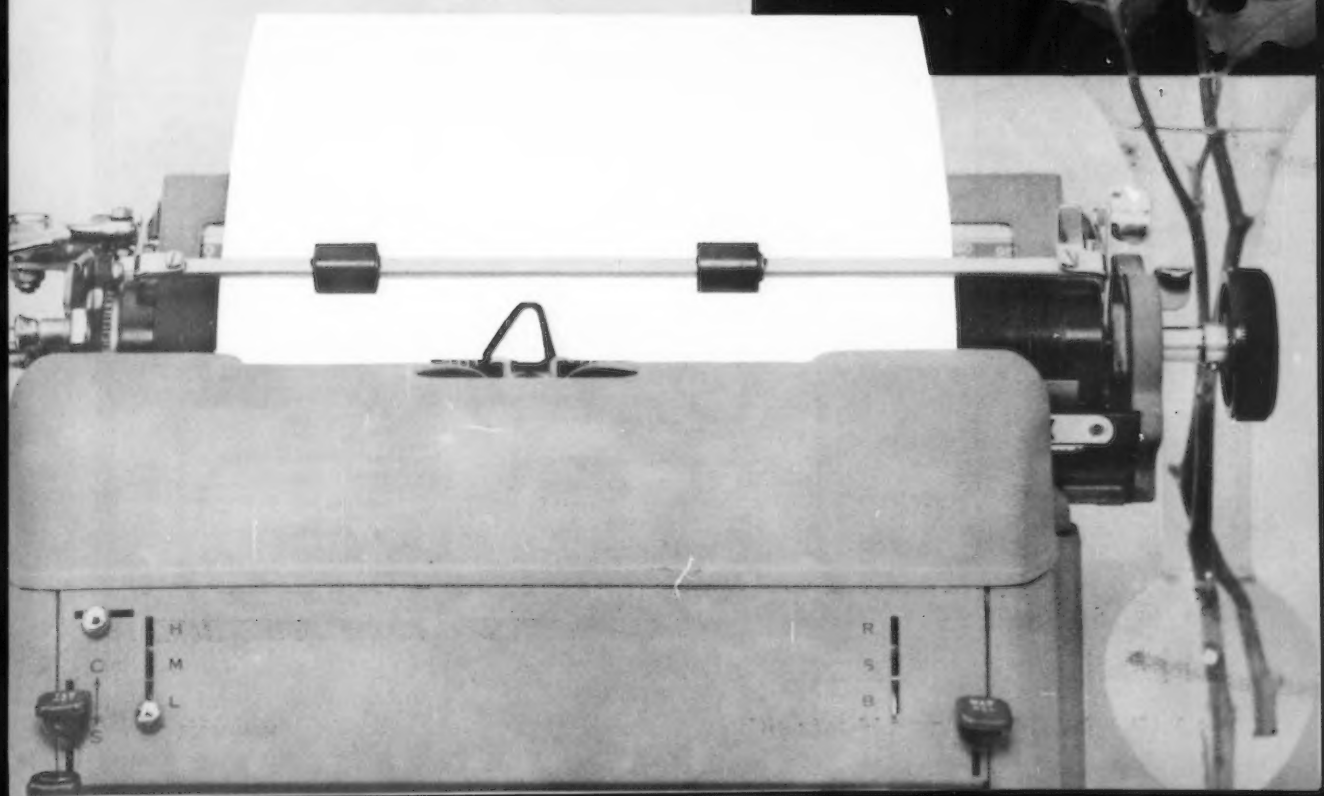
(This advertisement is printed on paper stock containing Glidden ZOPAQUE Titanium Dioxide.)



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73 WORDS

tell the **EXTREMULTUS** belting story. **EXTREMULTUS** cuts drive costs more than 50% because *it won't slip or stretch, outlasts all other belts—often costs less to start with!* No substitute can compare. That's why over 500 pulp and paper mills rely on **EXTREMULTUS** to save money, improve draw control, reduce down-time and maintenance costs. Write today for interesting, descriptive catalog.

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Engineering Test Center finds...

Which of these 3 products and services can you use from BECCO?

"Enclosing $1.00 — Send Patent License"

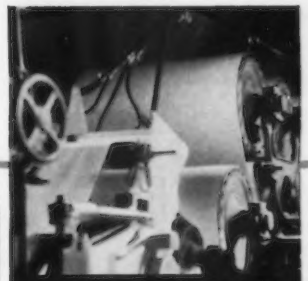
Well, perhaps there's a little more to your gaining use of Becco patents than just mailing your dollar in, but not much more. And certainly, no more money. The $1.00 really does cover it.

Becco has lots of patents, granted as a result of innovations in the use of Hydrogen Peroxide and other Peroxygen chemicals developed in Becco's Research Laboratories. But they don't do us a whole lot of good locked tightly in our safe. So, we long ago adopted the following policy:

If one of our patents can help you, we'll be glad to license the rights to you **perpetually,** for just one dollar. You get a nice certificate, incidentally, to cover the legalities, but more important — you also get free our complete engineering help in setting up your process, handling the material, maintenance, etc., etc.

What do **we** get? You as a **customer** — we hope — but there's no obligation on your part. Just seems to work out that way, though — when we know enough about a particular peroxygen to hold a patent on its use, chances are we've also learned enough to produce it purer than anyone else. You benefit from this; we do, too.

Use the coupon below to ask for a Sales Engineer — or our list of patents — that may help you solve an important problem.



How BRIGHT Is BRIGHT?

That's a hard question to answer. It depends on how the pulp is treated.

Trouble is, paper can show an 86 level at the layboy, but by the time the paper is delivered, this has dropped to 82 or lower. With conventional bleaching methods, that is.

Many chemical pulp producers have found the answer to this problem in Becco's Dryer Steep Bleaching Process (patented, but licensed perpetually for one buck). Applied by means of spray pipes across the pulp sheet ahead of the dryers, Becco Hydrogen Peroxide increases brightness permanence and bleaches in transit. Often, in fact, an 86 layboy level **improves** to 88 by delivery time.

This is just one example. Becco has a vast amount of technical knowledge compiled from 31 years of experience with **all** types of pulp. If **you'd** like help with your pulp, free of any obligation, let us know with the coupon below.

Problems in handling Hydrogen Peroxide

?

Becco's Four-Fold Engineering Service Program — offered **free** — includes:

1. Comprehensive survey of your facilities.
2. Specific proposal with recommendation of proved equipment and where it is obtainable.
3. Installation supervision by Becco.
4. Periodic inspection and permanent service.

Can you use this free Becco help, based on more years of experience with bulk handling of H_2O_2 than any other manufacturer? Use the coupon to let us know.

BECCO fmc

BECCO CHEMICAL DIVISION, FMC
Station B, Buffalo, New York

Dept. PTJ-F

Gentlemen:

Please send your list of patents available on the use of

- ☐ Hydrogen Peroxide
- ☐ Peroxygen Chemicals
- ☐ Persulfate Chemicals
- ☐ Please have a Sales Engineer call.

NAME_____

FIRM_____

ADDRESS_____

CITY_____

ZONE____ STATE_____

BECCO fmc

BECCO CHEMICAL DIVISION, FMC
Station B, Buffalo, New York

Dept. PTJ-C

Gentlemen:

We **would** like help with our pulp. Please have a Becco Sales Engineer call.

NAME_____

FIRM_____

ADDRESS_____

CITY_____

ZONE____ STATE_____

BECCO fmc

BECCO CHEMICAL DIVISION, FMC
Station B, Buffalo, New York

Dept. PTJ-B

Gentlemen:

Please tell me more about your Four-Fold Engineering Service.

NAME_____

FIRM_____

ADDRESS_____

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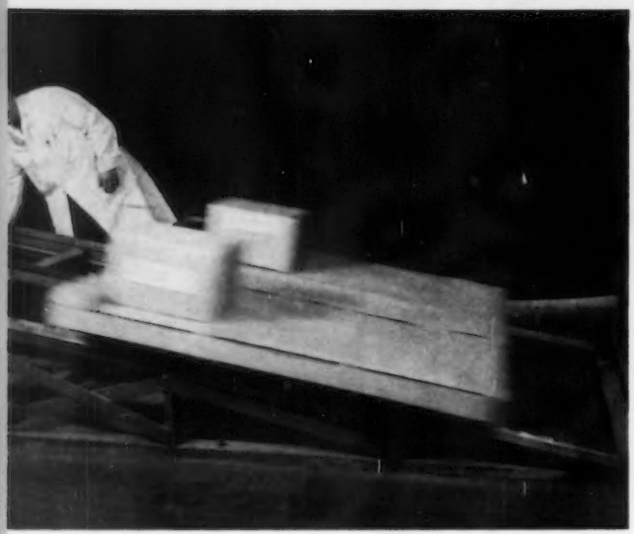
Engineering Test Center finds...

A coating of Du Pont "Ludox" reduces slippage of corrugated cartons by two-thirds



Here's what happens when plane of Conbur inclined impact tester is released and strikes barrier at six miles per hour. Impact causes untreated carton to slide full length of plane. Other carton, treated with "Ludox" colloidal silica, moves only about one-third as far.

A sudden stop or start can send a stack of cartons sliding so easily that when a package is damaged during shipping, impact is the cause three times out of four. In such cases, the difference between costly damage and safe shipment can be a remarkably simple thing—an invisible coating of Du Pont "Ludox" colloidal silica.

To find out precisely what advantages "Ludox" offers package users, Du Pont's Engineering Test Center recently ran a series of studies using a Conbur inclined impact tester. Corrugated cartons coated top and bottom with submicroscopic particles of "Ludox" slid only about one-third as far as untreated ones.

Users of treated cartons say they are much more stable during in-plant handling as well, minimizing threat of injury to employees. What's more, they resist soiling and offer a sharper printing surface.

Coatings of "Ludox" can be applied to paper or to finished packages by either mills or converters. For names of suppliers of treated cartons and more information about "Ludox", fill out the coupon below.

Miller Brewing Co., Milwaukee, reports that antiskid coating of "Ludox" reduces product damage caused by falling boxes and makes palletizing safer for employees.

DU PONT
REG U.S. PAT OFF

LUDOX®
COLLOIDAL SILICA

BETTER THINGS FOR BETTER LIVING...*THROUGH CHEMISTRY*

E. I. DU PONT DE NEMOURS & CO. (INC.)
INDUSTRIAL AND BIOCHEMICALS DEPT., RM. N-2543AP
WILMINGTON 98, DELAWARE

Please send me more information about ( ) antislip coatings of "Ludox".
Send me ( ) names of companies supplying treated paper products.

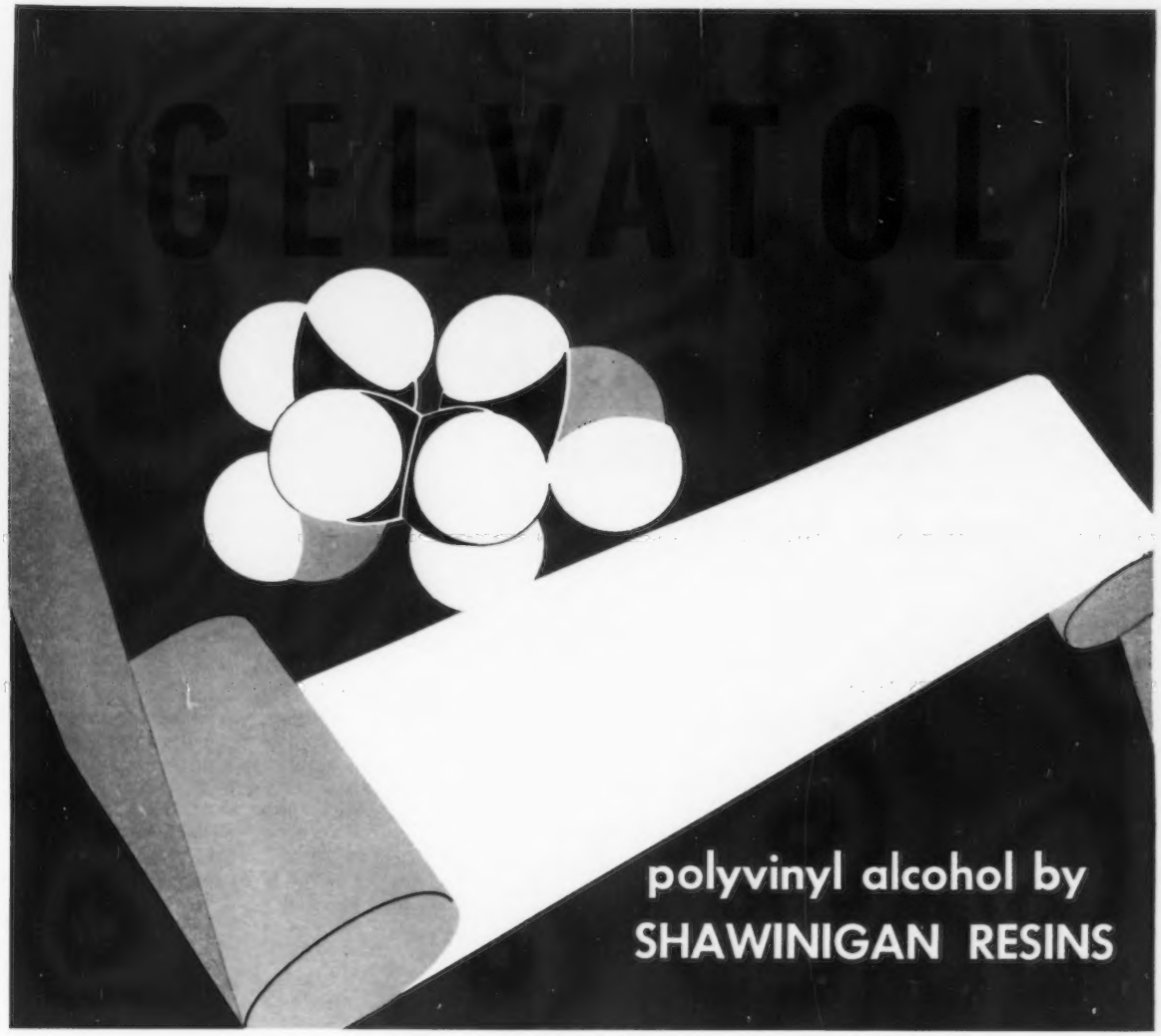
Name _____ Title _____

Firm _____

Address _____

City _____ State _____

One in a series of interviews with the men who are "Virginia"



designed for greater size . . . ability

For surface sizing paper or board, water soluble GELVATOL resins offer dramatic increases in strength, transparency, grease resistance and printing qualities. Can be applied by any of the conventional methods: tub, size press, and calender stack.

Why not make a test run and notice the—

Increased Strength. GELVATOL sizing significantly increases the Mullen and fold endurance of rag stock and other high quality paper.

Increased Transparency. GELVATOL sizing improves the gloss, grease-resistance and transparency of glassine.

Increased Grease-Resistance. Surface sizing with GELVATOL makes paper grease-resistant; surface coating makes paper grease-proof. Improves wax holdout.

Increased Printability. GELVATOL imparts a smooth finish to paper. Improves ink holdout and contrast. Provides excellent varnish holdout.

GELVATOL is available in a wide variety of grades. Whatever your sizing needs it will pay you to write for full technical information to Shawinigan Resins Corporation, Department 6346, Springfield 1, Massachusetts.

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SHAWINIGAN RESINS

Morden's creative engineering, combined with the cooperative experience of nearly

One in a series of interviews with the men who are "Virginia"

"Bleaching groundwood pulp with hydrosulfites can be done easily—with minimum capital investment—for less than $6 per pulp ton, including chemicals and steam for heating"

Robert Barton, a "Virginia" technical representative

Simplicity of operation, low cost, high pulp brightness—these factors have attracted many groundwood pulp processors to the use of either sodium or zinc hydrosulfite as their principal bleach agent.

The advantages of hydrosulfite bleaching are discussed by Robert Barton, a technical representative of Virginia Smelting Company.

Q How does the cost of bleaching with hydrosulfite compare with the cost of oxidizing bleaches?

A Extremely well. The cost of using zinc or sodium hydro usually runs less than one-half that of the oxidizing bleaches, and with equally good results.

Q Just what is the brightness gain using hydro?

A That question has to be qualified somewhat, I think. You see there are factors that have to be considered in bleaching groundwood pulp with hydro —the *p*H of the stock, temperature, reaction time, iron content of the pulp and of the process water. But with reasonably good conditions, single-stage bleaching with hydro will result in about 10 or 12 brightness points gained.

Q Does installation of equipment present any problem?

A Not at all. Most manufacturers who have gone to the hydro bleaching process are well pleased with the simplicity of the installation. And at the low cost, I might add. Generally they can use existing chests and pumps in their plants —adding necessary piping. Not much more is needed.

Q Do the hydrosulfites offer any advantages to a manufacturer now using peroxide for his bleach?

A Very definitely. In our laboratories at "Virginia" we have helped develop the 2-stage bleach for groundwood pulp that gives an absolute maximum brightness—at a cost that cannot be touched by any other method.

Q How does this 2-stage bleaching work?

A Well, for brightness gains up to 12 points, of course, the single-stage hydrosulfite bleach is the most economical. But for gains from 12 to 20 points, we recommend a 2-stage bleach. The first stage is a peroxide bleach. We follow that with a sulfur dioxide treatment to remove any residual peroxide in the slurry. This is followed by a hydro bleach. We will be happy to furnish all the data to anyone interested in this process.

Q Does "Virginia" offer technical assistance to any manufacturer interested in either the single-stage or 2-stage bleach process?

A A great deal. Our experience in this field is long and extensive, and available to anyone interested. For preliminary bleaching studies, we maintain a complete pulp laboratory at our plant. To solve certain types of problems, we obtain pulp samples, make laboratory bleaches, study the brightness gains along with any contributory factors, and make a complete report to the manufacturer. Along with the report go our recommendations—and of course our laboratory men are quite impartial in their findings. If the manufacturer has a process involving problems that make hydro impractical for any reason, we will tell him so quite frankly. But this occurs very infrequently. We welcome inquiries from any manufacturer interested in exploring the possibilities of hydrosulfites in pulp bleaching.

• • •

FOR MORE DATA ON HYDROSULFITES

write to us on your company letterhead describing your present bleaching process, giving full details wherever necessary. We will send you pertinent technical bulletins from the extensive "Virginia" library of literature on pulp bleaching. If you prefer, we will have a "Virginia" man call on you.

Industrial Division
VIRGINIA SMELTING COMPANY
Dept. 215, West Norfolk, Va.

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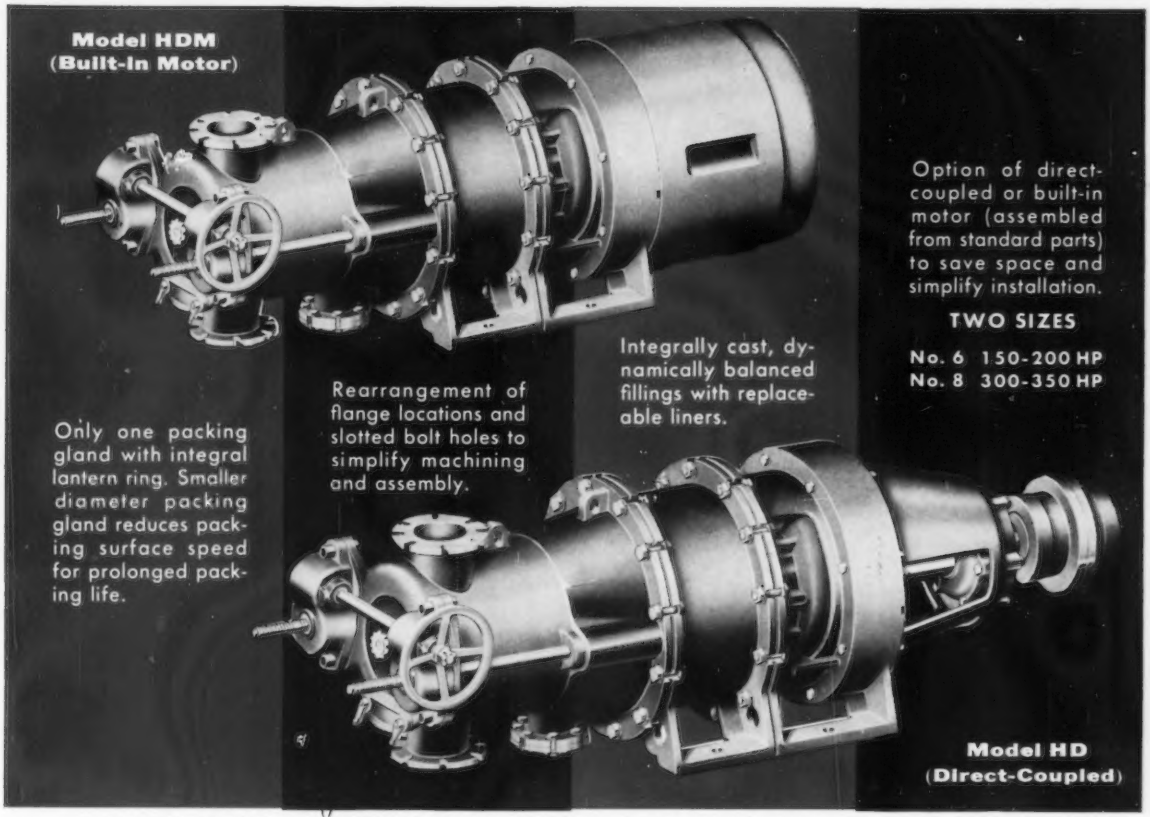
The NEW MORDEN

Morden's creative engineering, combined with the cooperative experience of nearly 300 paper mills using more than 1000 Morden refiners, brings you a completely new form . . . of the "Stock-Maker" and "Stuff-Maker."

These new machines are engineered to:

1. Further improve the "Stock-Maker's" reverse-flow, sealed-pressure beating treatment—so well proven through the last 25 years.
2. Retain the "Stuff-Maker's" straight-through-flow jordaning treatment—requiring only a simple filling interchange to give brushing or cutting treatment—now all in the same refiner housing.
3. Maintain Morden's high quality of materials, workmanship and performance—with savings of 20% in initial equipment and replacement filling costs.


Model HDM
(Built-In Motor)
Option of direct-coupled or built-in motor (assembled from standard parts) to save space and simplify installation.
TWO SIZES
No. 6 150-200 HP
No. 8 300-350 HP
Integrally cast, dynamically balanced fillings with replaceable liners.
Rearrangement of flange locations and slotted bolt holes to simplify machining and assembly.
Only one packing gland with integral lantern ring. Smaller diameter packing gland reduces packing surface speed for prolonged packing life.
Model HD
(Direct-Coupled)

INVESTIGATE NOW FOR SAVINGS UP TO 20%!

Ask for further description of the new "Stock-Maker" and "Stuff-Maker" and how they can benefit your operation. We shall be happy to visit you for an in-the-mill discussion of your requirements.

MORDEN
MACHINES COMPANY

3420 S.W. Macadam Avenue • Portland 1, Oregon

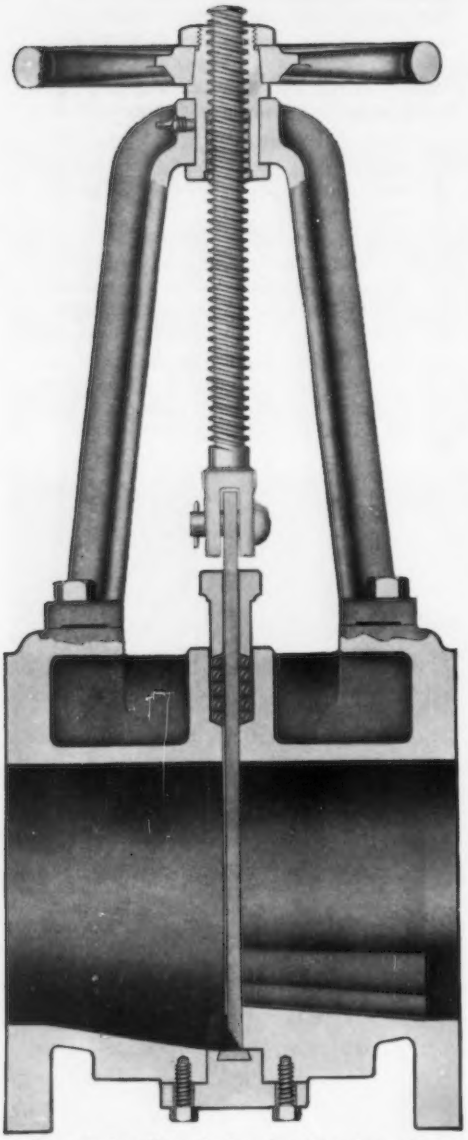
UNITED STATES REPRESENTATIVES—South: Brandon Sales, Inc., Greenville, South Carolina. **Midwest:** Dan B. Chapman, Appleton, Wis. **Northeast:** Orton Corporation, Fitchburg, Mass.

Better pulp flow— at lower cost— with these Crane valves

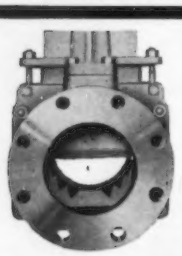
Here's the valve that will give you clog-free operation on the highest consistency pulp stock! It will pay for itself again and again in avoiding down time for cleanouts.

The special design of this valve eliminates areas where pulp can build up and clog. It has no bonnet. Flow-through is in a straight line. Seating is made with a knife-edge disc that cuts cleanly through pulp fibers. The notched lower half of the outlet combs the fibers to aid the cutting action of the disc. Lead filler disc-stop prevents dulling or damage to cutting edge of disc.

Special packing in the rectangular stuffing box insures durable seating around disc, also minimizes friction on disc. For color change-over, flushing out is simple and quick through removable bottom cleanout plate. Additional body openings—drilled, tapped and plugged—available as ordered.



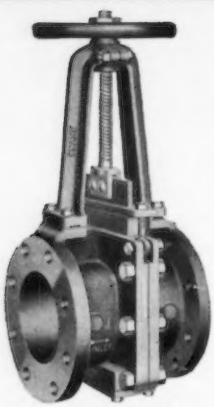
Cross section of iron body valve. Note bonnetless design, large port area and easy access for cleanout.



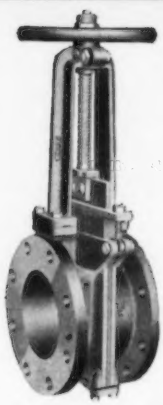
This close-up shows the specially designed notches in outlet half of body. Combing effect of notches on fibers helps disc to shear them cleanly and to seat completely.

Write for Bulletin AD-2156

Crane pulp stock valves are cutting operating costs in pulp and paper mills everywhere, and can do the same for you. Choose the patterns you need from Bulletin Ad-2156 which gives technical and application data on the complete line. Get your copy from your local Crane Representative, or write to address below.



Iron body valve with bronze disc in sizes 4 to 20 in. 3% nickel iron body and 18-8 SMo disc in sizes 4 to 24 in.
Quick-opening types with iron body, bronze disc or 3% nickel iron body and Exelloy disc, in sizes 4 to 16 in.



For stock lines where corrosion is a problem, specify these stainless steel valves with 18-8 SMo stainless steel disc and Exelloy stem. Compact face-to-face design, less bulk, and reduced weight make them ideal for light-wall, stainless steel stock lines. Sizes 4 to 16 in.

CRANE® VALVES & FITTINGS

PIPE • PLUMBING • HEATING • AIR CONDITIONING

Since 1855—Crane Co., General Offices: Chicago 5, Illinois—Branches and Wholesalers Serving All Areas

Take it from a paper mill man who knows: foam, entrapped air and related problems can be solved effectively with Houghton's De-Airex, and at a *lower cost per ton* of paper!

No one variety of De-Airex will solve all foam troubles; therein lies the secret of our acceptance by mills from coast to coast—SERVICE. That is a story in itself; we call it "Personalized Paper Mill Service" . . . a story we'd like to tell you.

So (1) you get specialized attention to *your* mill's foam problems, (2) you get rid of foam or entrapped air which hurt paper quality, and (3) you save money. Three very good reasons for contacting Houghton and having a paper specialist talk it over with you.

E. F. Houghton & Co., 303 W. Lehigh Avenue, Philadelphia 33, Pa.

DE-AIREX

. . . a product of

E. F. HOUGHTON & CO.

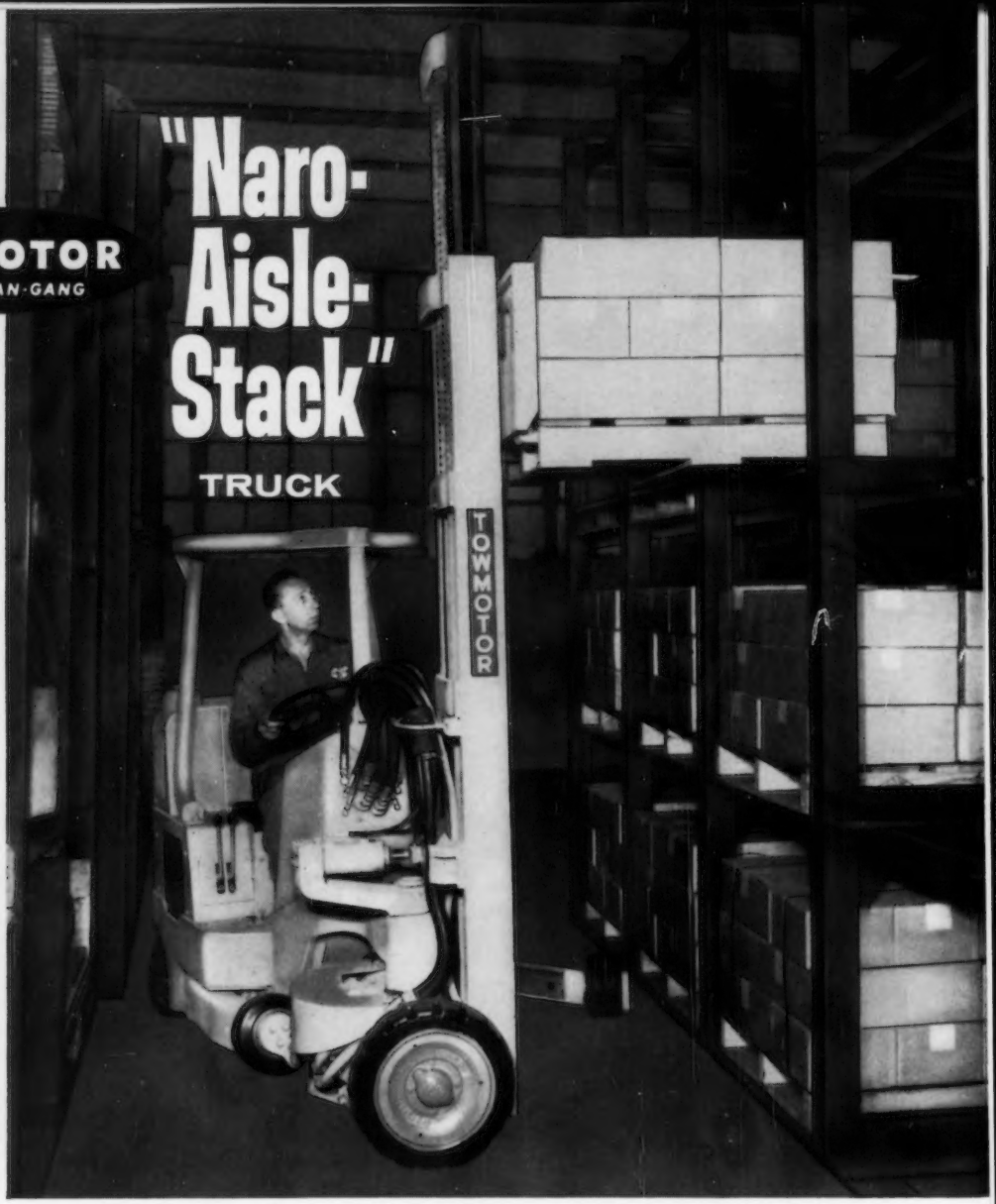
Ready to give you on-the-job service

Philadelphia, Pa. • Chicago, Ill. • Carrollton, Ga.

Detroit, Mich. • San Francisco, Calif. • Toronto, Canada

TOWMOTOR
THE ONE-MAN-GANG

"Naro-Aisle-Stack" TRUCK



Increases storage capacity up to 35% . . . gives you an "extra warehouse" free

Stacks either side in 6-foot aisles...

Newest idea in fork lift trucks!

...also performs like standard lift trucks

The "Naro-Aisle-Stack" series is a Towmotor "first" that offers an entirely new mass handling technique in fork lift truck operation.

Equipped with hydraulically operated outriggers, Towmotor "Naro-Aisle-Stack" trucks perform right and left angle stacking in aisles 6 feet wide, or from four to six feet narrower than lift trucks usually require.

In addition, they also perform all of the functions of a regular fork lift truck. They pick up and lift heavy loads at speeds of 70 feet per minute. Their built-in maneuverability and pivot-action make it possible to operate in congested storage areas and turn sharp corners with the agility, safety and comfort only a sit-down type truck offers.

The new Towmotor "Naro-Aisle-Stack" truck is made possible only by the use of the exclusive Towmotor Towmostatic Drive—the drive that eliminates the clutch, the transmission, the drive line, the differential and all shifting mechanism. It's a brand new idea in fast, efficient materials handling.

For complete information, write Towmotor Corporation, Cleveland 10, Ohio, and ask for folder No. F-37.

TOWMOTOR
THE ONE-MAN-GANG
®
-GERLINGER

LEADERS FOR 40 YEARS IN BUILDING FORK LIFT TRUCKS, CARRIERS AND TRACTORS

Gerlinger Carrier Co. is a subsidiary of Towmotor Corporation

U.S.I. POLYETHYLENE NEWS

A series for plastics and packaging executives by the makers of PETROTHENE polyethylene resins

NOVEMBER, 1959 — U. S. Industrial Chemicals Co., Division of National Distillers and Chemical Corporation — 99 Park Ave., N. Y. 16, N. Y.

Packaging Notes

A low-cost, semi-automatic bagging machine puts canned and bottled goods in preprinted polyethylene bags to stimulate larger unit sales to the consumer.

A brewery, for example, has increased its sales by replacing its conventional six-pack with an eight-can bagged unit. Quart bottles are bagged in units of three. As an added consumer advantage, the polyethylene bags can be filled with ice to keep the beer cold. The bagging machine can be used to package such canned and bottled products as soft drinks, soups, juices, and dog foods.

A new polyethylene and paper pouch for liquid bleach has been introduced. This disposable pouch for coin laundries holds 2½ ounces of highly corrosive 15% sodium hypochlorite. It is expected to replace the present eight ounce returnable bottles which hold 5% sodium hypochlorite.

The pouch is constructed of paper coated with 3½ mil polyethylene film. A special tear tape at one end permits opening of the package quickly and easily. The package reportedly is lower in cost. It has a shelf-life of six months.

Containers with built-in polyethylene coated paper liners are being used by a frozen foods company to package a portion of its frozen fruits.

Designed to eliminate the conventional overwrap, the new package is said to prevent leakage of the package's contents both before freezing and after defrosting. Liner and carton flaps are automatically sealed, with a combination of polyethylene heat sealing and adhesive.

The new package is more convenient to open than previous metal and fibre cans. Its special interlocking top flaps can easily be ripped off by the consumers without danger of spilling the contents. The new polyethylene lined carton stacks better and provides more printing area. It reportedly has reduced packaging costs and increased packaging speed.

Ralph Knight Appointed Vice President at U.S.I.

Ralph M. Knight has been appointed a Vice-President at U.S. Industrial Chemicals Co. The new appointment was announced by Dr. Robert Hulse, General Manager of the U.S.I. Division.

Mr. Knight will be responsible for long range planning and coordination of U.S.I.'s polymer development program. He will continue to direct the company's Polymer Service Laboratory as well as coordinate its efforts with other plastic activities in the company. Mr. Knight joined U.S.I. in 1953 as Polyethylene Manager. He is a graduate of Newark College of Engineering.

U.S.I. Plans 50 Million Pound Polyethylene Resin Expansion

Latest Increase Will Make U.S.I. World's Second Largest Producer

U.S.I. has announced plans for a new increase in production capacity of PETROTHENE polyethylene resins — this time 50 million pounds. The planned expansion will be at U.S.I.'s new Houston plant started up in February of this year. This plant, currently being upped from 75 to 150 million pound production per year, will be still further expanded to produce 200 million pounds.

This is part of U.S.I.'s new polyethylene plant located at Houston, Texas, at the time that finishing touches were being made on product silage units last spring. Originally built with an annual capacity of 75 million pounds, the plant is currently being upped to 150 million pounds, will have a final capacity of 200 million pounds, when further expansion is complete next year.

The expansions are expected to be complete by mid-1960, giving U.S.I. an overall production capacity of 300 million pounds annually. This will make the company the second largest among all polyethylene producers in the world.

Growth Has Been Spectacular

U.S.I.'s growth in the polyethylene field has been spectacular. Starting with a production capacity of 26 million pounds in 1955, the company will have realized increase in production of well over 1000% when the expanded facilities go on stream.

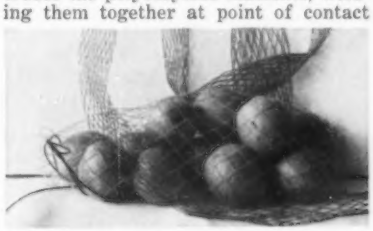
Along with this growth has come technical leadership in the field of polyethylene processing, particularly in packaging film. Eighteen months ago, U.S.I. pioneered a new technique for producing crystal-clear cast polyethylene film that is finding extensive application in large volume overwrap and bread wrap markets. While U.S.I. has specialized in low and medium density resins, it has done extensive research work on a new process for making high density polyethylene. The process is said to be superior to any now in use. U.S.I. also is studying the polypropylenes and other polyolefin copolymers in pilot plant operations.

Wide Range of Resins Available

In all, PETROTHENE polyethylenes are available in some 70 different resins, each varying in melt index, density, strength, clarity, gloss, slip, stiffness, and other properties. This wide range of resin properties is a result of U.S.I.'s program of tailor-making resins to meet specific molding and extrusion requirements.

Polyethylene Netting Made With Special Extrusion Die

A new polyethylene netting, extruded from a special reciprocating die, promises to have many decorative and practical applications. The die cross extrudes the polyethylene filaments, welding them together at point of contact while the resin is still molten. The filament junctions are stronger than is possible with heat sealing.



Both decorative and practical applications are foreseen for continuous tubular netting like this which is now being produced.

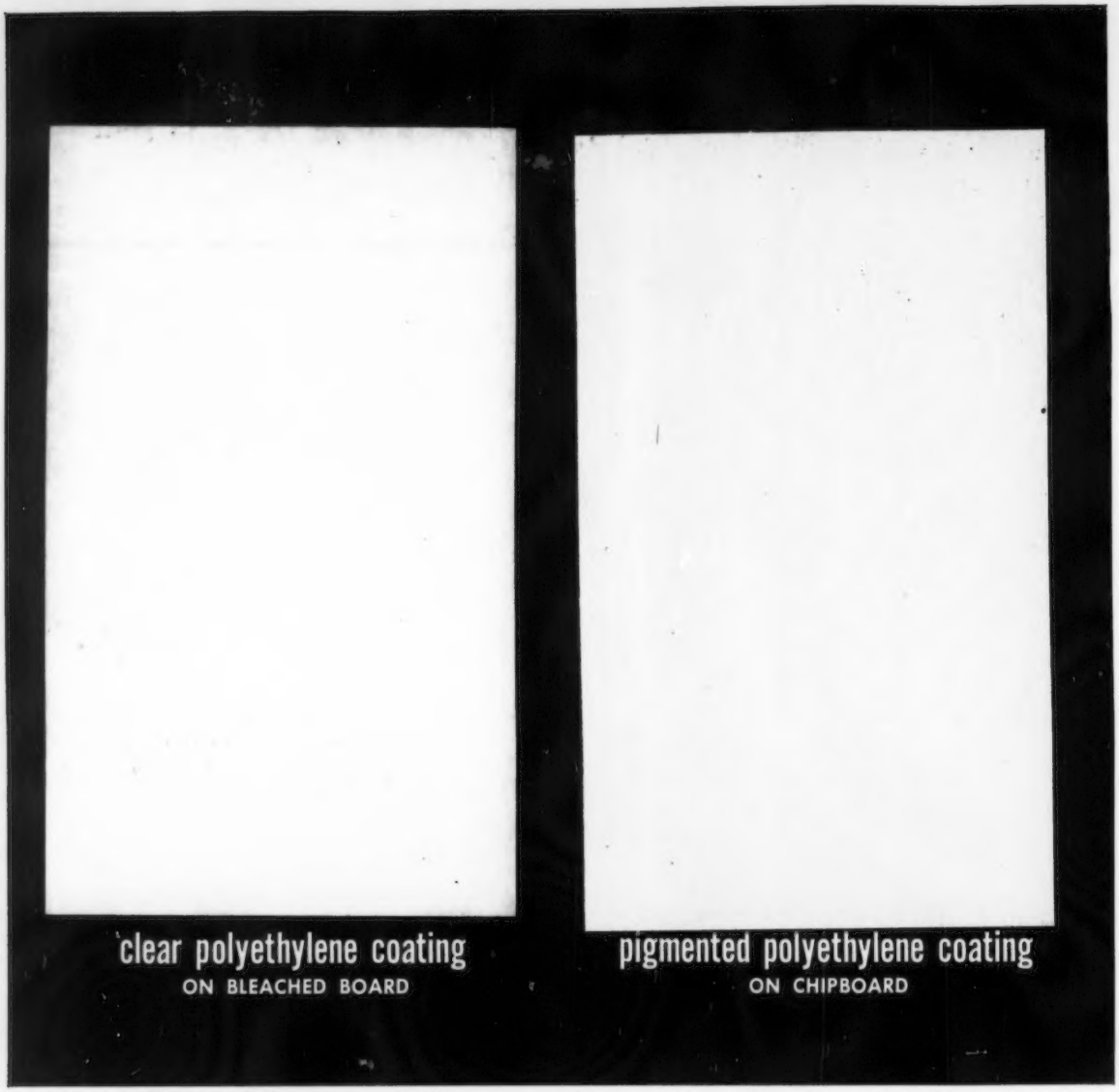
At present the net can be produced in widths up to 36 inches and in tubular form. Multicolored effects can be obtained and the mesh can be varied from very fine to fish-net coarseness.

The manufacturer is now developing an automatic bag machine for packaging vegetables and other produce.

New Ultraviolet Absorber For Polyethylene

A new ultraviolet absorber for polyethylene is currently being evaluated. Thus far, carbon black has been the most commonly used screen for ultraviolet light.

The new compound, if successful, will permit extended outdoor use of clear and colored polyethylene compounds. Field tests have already shown that 10-mil polyethylene film mixed with .171% by weight of the absorber, retained 85% of elongation after two months use in strong sunlight.



THE CHOICE IS UP TO YOU . . .

You know about polyethylene-coated board and the wonderful job it's doing in the food and industrial packaging fields. But do you know about *pigmented* polyethylene coatings and how they can upgrade lower-priced board, allowing you to choose from a wider range of board stock and to achieve even greater flexibility in your choice of packaging materials.

Investigate both kinds of polyethylene coatings; you'll find they're more versatile than ever before.

Clear or pigmented—extruded polyethylene coatings are tough, scuff resistant, unusually adherent. They have superior grease and moisture resistance. They will not scratch other surfaces. They heat seal readily, offer good printability.

Extruders and packagers who make or use polyethylene-coated board may obtain information and technical assistance by writing to U.S.I.

EXTRUDERS—

PETROTHENE® polyethylene extrusion coating resins, manufactured by U.S.I., have good drawdown properties with a minimum of neck-in, give excellent adhesion even down to the thinnest gauges.

U.S.I. INDUSTRIAL CHEMICALS CO.
Division of National Distillers and Chemical Corp.
99 Park Ave., New York 16, N. Y.
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Trends

Paperboard Output Continues to Set Records

Total paperboard production during the first ten months of 1959 reached 13,350,000 tons which is more than that produced in the full years from 1950 to 1954. Containerboard hit a new high of 180,200 tons in the week ending October 17th. To-date containerboard production is 15.4% higher than a year ago, while boxboard is running ahead by 7.5%. Demand for paperboard continues high. Unfilled orders averaged over 520,000 tons a week during October as compared with an average of less than 450,000 tons a week in October of last year.

Pulp Output and Shipments Hold Gains

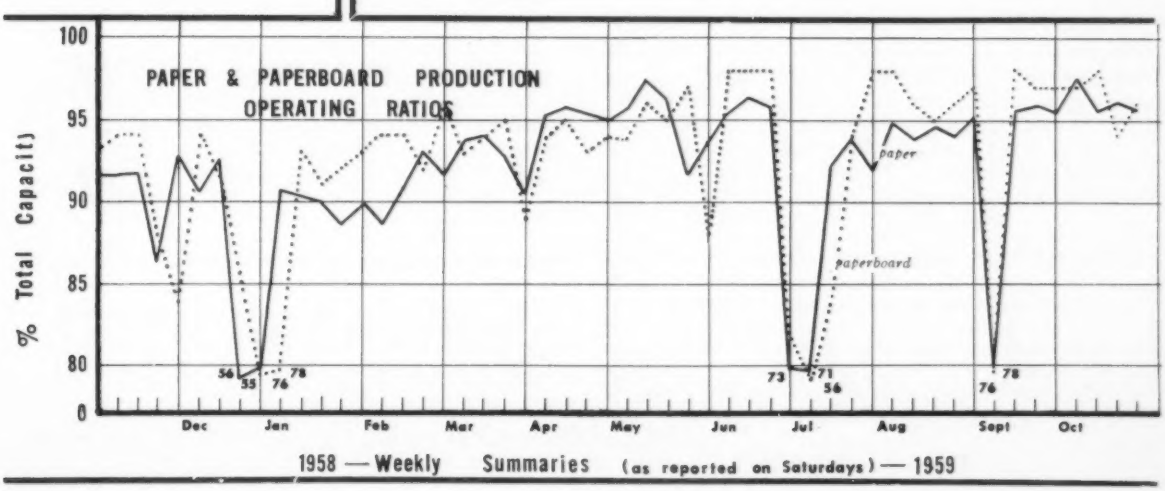
Total woodpulp production in September was 10% above the same month a year ago. Total output for the first nine months was 14% over last year. Domestic shipments were up 3% in September and foreign shipments were up 93%. For the year to-date domestic shipments were up 11% and exports up 14%.

Building Products Show Mixed Results

Asphalt and tar roofing and siding products continued to show mixed results in September. Asphalt roofing was 7% up over a year ago, while asphalt and insulated siding products were off 5% and 16% respectively for the month. Asphalt board products were up 15% in September. For the year to-date asphalt roofing is unchanged from a year ago. Both types of siding are down and the board products up for the nine month period.

Present Newsprint Capacity Ample for Six Years

Present North American newsprint capacity is sufficient to take care of anticipated requirements through 1965, according to a survey just completed by Burnham & Co. The report indicates a slight year by year improvement in newsprint mills operating rates, but these are not expected to substantially exceed 90% before 1964 at the earliest. A summary of the Burnham report will be published in our next issue.



"We found the big difference in PVC

. . . and an important one, too," reports one of the nation's leading industrial companies. A PVC pipe that included synthetic rubber to give it high-impact strength was being used in process lines handling acid. Suddenly it was discovered that the acid was eating away the rubber—leaving black particles in the solution.

So out came the old pipe, replaced by Ryertex®-Omicron PVC—the pipe that's unplasticized, unmodified, and has no additives. There is *nothing* in the material to contaminate the acid. And it has *natural*, high-impact strength.

This company now has ¾" through 1½" Ryertex-Omicron PVC pipe, with companion fittings and valves, operating at continuous temperatures of 125° F. at maximum pressures of 40 p.s.i.

After 18 months of problem-free service, the engineering director has standardized on Ryertex-Omicron PVC. Whether your problem is contamination or corrosion, it will pay you to learn all the facts on Ryertex-Omicron PVC.

GET THIS NEW BOOKLET

. . . for latest information on combating tough corrosion problems with Ryertex-Omicron PVC. Write Joseph T. Ryerson & Son, Inc. for your free copy today. We will gladly work with you on any problems you may encounter.

Typical applications

Pulp lines, chlorine lines, chlorine gas distributors, white-water tanks, sizing tanks, head boxes, throughs, blowers, flow boxes and baffles, beater linings, fan housings, bars and girths, trays and pulp-measuring devices.

INDUSTRIAL PLASTICS AND BEARINGS DIVISION

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STEEL • ALUMINUM • PLASTICS • METALWORKING MACHINERY
NATION'S MOST COMPLETE SERVICE CENTERS IN PRINCIPAL CITIES COAST TO COAST

New Equipment for Stock Prepar-

A New Device for Withdrawing

Walker to Address

PTJ PAPER TRADE JOURNAL

WEEK OF NOVEMBER 16, 1959

AS POWER SHOVEL BREAKS GROUND for addition to Mead Research Center, R. H. Savage, research vice president, left, shows G. H. Pringle, executive vice president, where new experimental paper machine will be installed. Existing research pilot plant and high-speed paper machine room are in background.

Mead Expands Research Center

Ground has been broken for the new $1.4 million additions to The Mead Corp. Research Center in Chillicothe, Ohio. Construction of two new wings and a pilot plant extension, which will double the size of Mead's research facilities, is expected to be completed in approximately one year.

These new additions, which will add 46,900 square feet to laboratories, offices and pilot plant area, will house the research activities of Hurlbut Paper Co., a Mead wholly owned subsidiary, as well as Mead's own research staff.

The expansion of the Research Center will increase employment in the department which now numbers 166, including 69 scientists.

C-Z Canada Acquires Columbia Paper

Crown Zellerbach Canada, Ltd., reports it has acquired Columbia Paper Co., Ltd., one of British Columbia's pioneer distributors of fine and general paper products.

Columbia paper has sales offices and warehouses in Vancouver, Victoria, Prince George and Prince Rupert.

Columbia Paper will operate as a division of Crown Zellerbach Canada. The acquisition gives Crown Zellerbach Canada its own distributing outlet in British Columbia.

Mt. Tom Plant Requests $200,000 Building Permit

Thomas E. Prescott, vice president of the Mt. Tom Pulp Paper Corp., has filed a building permit for a new structure to house the corrugated paper plant at Mt. Tom. The permit calls for the construction of a building estimated to cost $200,000. The structure, 168 by 220 feet, will be cinder block, with wooden beams.

The old sulphite mill has been idle for several years. Mt. Tom formerly made towels and tissues. Mill is being revamped for production of the new product.

Canadian Mill Men to Meet Jan. 26-29

The 1960 Annual Meeting of the Technical Section, Canadian Pulp and Paper Ass'n., will be held at the Queen Elizabeth Hotel, Montreal, on the last Tuesday, Wednesday, Thursday and Friday of January, the 26th, 27th, 28th and 29th. This is a departure from previous practice, in that sessions will begin at 2:00 p.m. on Tuesday and will end at noon on Friday. The Registration Desk will open at 9:00 a.m. on Tuesday and a Products Display will be held concurrently with the meeting.

For some time now all the committees of the Section have been actively engaged in preparing their portions of the program. It is expected that the program will include a variety of excellent papers and discussions covering all phases of pulp and paper manufacture of interest to management and operating personnel.

Tentative topics for discussion at the Annual Meeting in the form of formal papers or as group discussions include the following:

Developing Stiffness Testing for Stacking Properties of Containers;

Improvements, Complete Reconditioning and Re-alignment of Paper Machine Dryer Sections, at Bowater's Corner Brook Mill;

The Sulzer Blower Installation at The E. B. Eddy Co.;

Electrical Testing in Care and Repair of Motor and Generator Insulation;

Recent Developments in Electrical Insulation;

Electrical Load Break Switches;

Gaspesia's Instrument Preventive Maintenance Program;

Discussion of Proposed Instrument Shop Organization;

Automatic Roll Wrapping Equipment and Techniques;

Materials Handling Clinic;

Dimensionally Stable Cores;

What are *Your* Material Handling Costs—A Survey of 10 Mills;

White Pigments and Paperboard;

Discussion of Board Mill Operating Problems;

New Equipment for Stock Preparation;

A Few Thoughts on Paper Machine Pressing;

Use of A New Formation Tester at Baie Comeau;

Discussion of Groundwood Operating Problems;

Stadler Memorial Lecture — The Inverform Machine;

Toleeka Weight Control Systems—A New Layboy;

The Scanning Electron Microscope at P.P.R.I.C.;

Chemical Comparison of Kraft and Sulphite Pulps;

A New Device for Withdrawing Chips or Pulp Samples During the Course of the Cook and the Results Obtained with Sulphite and Kraft Pulps;

Effect of Chip Damage on Kraft and Sulphite Pulps;

Comparison of Bleaching Processes for Kraft and Sulphite Pulps;

A Panel Discussion on the Fundamental Differences between Kraft and Sulphite Pulps;

The Soviet Pulp and Paper Industry; and

Comparison of Direct and Indirect Kraft Cooking.

N.P.T.A. Announces Exhibit Space Change

An important change in the exhibit space at the Paper Show, sponsored by the National Paper Trade Ass'n., to be held at The Waldorf-Astoria, New York City, March 27 through March 30, was announced by Ed Bonner, N.P.T.A.'s exhibit manager. He said that starting in 1960 the Paper Show will be on the 7th, 8th and 9th floors at the hotel. For the past decade The Paper Show was held on floors 8, 9, and 10. The tenth floor will be eliminated because of extensive alterations and refurbishing planned by the hotel.

Mr. Bonner pointed out, however, that new floor plans will offer comparable space as in the past and exhibitors should find the new set-up as satisfactory as previous years. Revised floor plans will be mailed to all prospective exhibitors on December 1. The Paper Show is expected to attract some 150 mills and converters who exhibit the latest innovations in their product lines.

Survey Finds Weeklies Will Use 263,000 Tons of Newsprint in '59

America's weekly newspapers are becoming increasingly significant consumers of newsprint, according to the November issue of Newsprint Facts.

The publication, produced by a representative group of Canadian newsprint producers, based its conclusion on a soon-to-be-published survey which established that the nation's 9,025 weekly newspapers will use 263,000 tons this year for their combined circulation of 21 million. The survey, first of its kind, was conducted by the trade magazine, The American Press. Ten years ago there were almost 9,800 weeklies but their circulation totaled only 16 million.

"While the mortality of weekly newspapers is traditionally high," said Newsprint Facts, "the drop in number over the past decade does not reflect this fact exclusively. In addition to those which ceased publication, a number of weeklies have stepped up publication to two or three times a week or become dailies."

Growth of the suburbs in post war years is probably an important factor in the well-being of the weeklies, it was said.

Until the American Press survey there was little information on the role of the weeklies in newsprint consumption. Most smaller newspapers buy their newsprint from merchants and brokers rather than direct from the mill and these transactions are not recorded centrally. It was known that seven per cent of the nation's newsprint supply did not go to daily newspapers, but the survey fixed more than half of this, or about 3.7 per cent of the national total, as utilized by weeklies. The balance of 3.3 per cent is used for comic books, school tablets and the like.

The American Press polled 3,800 weeklies and projected replies from 699 to arrive at the national total.

Walker to Address TAPPI Lake Erie Section

On November 19 William C. Walker, director of research at the Williamsburg research laboratory of the West Virginia Pulp & Paper Co., will address the TAPPI Lake Erie Section. Dr. Walker, who has an extensive background in research in the performance of paper & printing processes, will discuss "The Printing Industry."

The Lake Erie Section meets at the Cleveland Scientific & Engineering Center each month. The November 19 meeting is scheduled to start at 6:30 p.m. with a dinner, followed by Dr. Walker's remarks.

New Electron Microscope Presented To IPC

The Institute of Paper Chemistry at Appleton, Wis., has received a gift of $30,000 from the Louis Calder Foundation to establish a modern electron microscopy and diffraction laboratory, it was announced by John G. Strange, president of the institute.

The electron microscope now used at the institute was installed almost 20 years ago.

Paper and Paper Board Production

The American Paper and Pulp Association reported the ratio of the United States paper production to mill capacity for the week ending October 31, 1959 at 95.7 per cent, compared with 96.1 per cent, revised for the preceding week. The ratio was 91.7 per cent for the corresponding week a year ago.

The American Paper and Pulp Association also reported that the capacity level used in this survey was increased by 1½ per cent as of the revised October 24, 1959, figure. The Association reviews the capacity of the companies participating in this survey twice each year.

The National Paperboard Association reported the paperboard production ratio for the week ending October 31, 1959 at 96 per cent, compared with 94 per cent for the preceding week and 95 per cent for the corresponding week a year ago.

(Detailed statistics on page 66)

BIRD CENTRIFFLER

Pays for Itself...

Through Savings in Wear - Tear - Repair

The Bird Centriffler takes out junk and dirt from stock as it leaves the pulpers — before it can damage expensive equipment or get broken up and get into the sheet.

The Centriffler quickly pays for itself out of savings in wear and tear and repair of pumps, wires, felts, knives, cutters and other equipment. *Let us provide layouts and estimates.*

BIRD MACHINE COMPANY

SOUTH WALPOLE, MASS.
REGIONAL OFFICES: EVANSTON, ILLINOIS
PORTLAND, OREGON • ATLANTA 9, GEORGIA
Canadian Manufacturers of Bird Machinery
CANADIAN INGERSOLL-RAND COMPANY, Limited, Montreal

BIRD MACHINE'S *50th YEAR* OF SERVICE TO INDUSTRY

PAPER PEOPLE

R. B. Brenan

Brenan Elected to Fraser Board Exec. Committees

R. B. Brenan, president and managing director, G. E. Barbour Co., Ltd., Saint John, N. B., was recently elected to the executive committee of the board of directors of Fraser Companies, Ltd. He was also named a member of the board of directors of the subsidiary company, Fraser Paper, Ltd., and of its executive committee. In each position, he succeeds H. P. Thornhill who resigned for personal reasons.

Mr. Brenan has been a director of Fraser Companies for the past five years.

Littlefield and Towne Leave Chemical Fine Paper

George A. Littlefield and Gardner A. Towne have vacated their posts and are leaving the Chemical Fine Paper & Board Division of the Standard Packaging Corp., and the corporation itself.

Mr. Littlefield and Mr. Towne served as division manager and assistant division manager, respectively. The change in administration was announced by A. E. Bachmann, vice president in charge of mill operations.

The duties of division manager and his assistant will be taken by Stephen G. Stapley and Richard W. Maley, respectively. Mr. Stapley is presently production manager and Mr. Maley is assistant production manager. Both will also remain in their present positions, however.

St. Regis Transfers Two to Sartell Mill

Robert F. Caswell, Jr., and William J. Cusack have been transferred from the central technical department in Deferiet to the St. Regis Paper Co. mill in Sartell, Minn.

Mr. Caswell will be technical superintendent of the Sartell mill. His last position with the central technical department was regional group leader, technical service to manufacturing-pulping. He started working with the department summers while attending the College of Forestry at Syracuse University. Upon graduation in June 1954, he joined the company as a pulping assistant.

In September 1956, after 17 months in Korea in the Army counter intelligence corps, he returned to Deferiet as a chemical research engineer.

Mr. Cusack entered the Air Force in August 1942. After his discharge in 1945, he received a chemical engineering degree at Clarkson College in Potsdam. He then joined St. Regis as water treatment chemist in the steam plant in the Deferiet mill.

Daniel Campbell

Campbell Joins Sales Staff of Bulkley Dunton

Daniel Campbell, formerly sales manager in New York for the Allied Paper Corp., has been appointed to the sales staff of Bulkley Dunton & Co., New York, in the converting and publication department. A native of New York, Mr. Campbell is a member of the Paper Club of New York.

Perkins-Goodwin Elects Stirling V.P. Paper Dept.

Louis Calder, Jr., president of Perkins-Goodwin Co., international pulp and paper marketing-management organization, announces that Thomas L. Stirling has been elected vice president—paper department.

W. H. Apel

Apel Resigns Post With Wemyss Interests

William H. Apel of Orleans, Vt., has resigned as chief financial and administrative executive of the various Wemyss paper interests. Mr. Apel joined this pulp, paper and converting manufacturer in 1950 as controller and director of Groveton Papers Co., Groveton, N. H. Subsequently upon purchase of Diamond Match Co.'s paper mill at Plattsburgh, N. Y., he assumed additional function of administrative head of Vanity Fair Paper Mills, Inc., as treasurer and director as well as treasurer and director of various minor subsidiary companies. Mr. Apel has not announced any definite plans for the immediate future but will operate on a consulting and advisory basis with the various Wemyss companies.

Oxford Paper Announces Promotions

Two promotions recently announced by Oxford Paper Co., Rumford, Me., were: Maurice S. Anderson to supervisor, sulphite pulping and groundwood succeeding William H. Kraske who retired; and Harry C. Kinne, Jr., to beater room superintendent succeeding J. Peter Jensen who also retired.

Mr. Anderson is a chemical engineering graduate of Northeastern University. He joined Oxford in 1946 as a chemical engineer with the control department. In 1950 he was promoted to technical assistant for acid

OPEN

for business... felts by Huyck

THE Huyck-Smyth Porosity Tester, being used above, is the *only* practical instrument available to measure porosity of running felts. This device . . .

- **determines when cleaning is needed**
- **evaluates performance of cleaning equipment and other machine components**
- **locates filled or plugged streaks**
- **improves water removal**
- **reduces steam consumption**

It is the most important advance in measuring on-machine felt performance since the development of the Huyckmeter.

Originated by T. C. Smyth of Crown Zellerbach and further developed by Huyck, the Huyck-Smyth Porosity Tester is now available to aid the entire paper industry.

HUYCK FELTS

Huyck Felt Co.,
Rensselaer, N. Y.;
Aliceville, Ala.;
Division of F. C. Huyck & Sons
In Canada: Kenwood Mills Ltd.,
Arnprior, Ontario.

NEW

HUYCK FELTS ★ INDUSTRIAL FABRICS

FIRST IN QUALITY • FIRST IN SERVICE SINCE 1870

A SKILLED HAND IN CHEMISTRY . . . AT WORK FOR YOU

NOPCOSANT®

...for pitch dispersing

...for slime control

...for size stabilizing

...for coating fluidizing

...for uniform dyeing

You will find it worth your while to get all the facts about Nopcosant—Nopco's newly improved dispersant and solubilizer. Ask your Nopco representative or write for complete information. Remember, too, back of every chemical made by Nopco for the paper industry stands Nopco Technical Service—an experienced staff ready to assist with laboratory data and recommendations based upon your specific requirements.

Properties of NOPCOSANT

A fine powder of uniform particle size

★

Dusts less than any other similar product

★

Lightest colored product of its type

★

One of the most rapidly dissolving products available

★

Most nearly natural *p*H in its chemical class

NOPCO CHEMICAL COMPANY
60 Park Place • Newark, N.J.

NOPCO®

Plants:
Harrison, N.J. • Richmond, Calif. • Cedartown, Ga. • London, Canada

Why "Umpteen" different suppliers?

Allis-Chalmers Can Save You Time and Money with **Coordinated Engineering and Teamed Equipment**

Allis-Chalmers offers you all of these advantages:

- A broad line of mechanical *and* electrical equipment.
- Coordinated engineering — geared to match diversified Allis-Chalmers products to your specific needs.
- Application help for you or your consultants.
- Undivided responsibility for performance.
- Continuing field service.

And, of course, having only one supplier eliminates the many conference hours, the complications of delivery and installation scheduling, the phone calls, telegrams and voluminous correspondence associated with buying from a combination of suppliers.

Get the complete story *from your A-C representative or write Allis-Chalmers, Milwaukee 1, Wisconsin.*

Allis-Chalmers
Products for the Pulp and Paper Industry

Centrifugal pumps, rotary compressors, motors, control, Texrope drive equipment, screens, slakers, kilns, turbine-generators, condensers, switchgear, water conditioning equipment, materials handling equipment.

Texrope is an Allis-Chalmers trademark.

A-C ALLIS-CHALMERS

A-5976-PP

pulping and in 1952 to operating superintendent for sulphite and groundwood pulps. In 1957 he also became operating superintendent for the chemical coagulation, filter and clear water storage plant.

Mr. Kinne is a graduate of Colgate University. He also studied chemical engineering and pulp and paper technology at the University of Maine. He joined Oxford in 1952 as a technical service engineer. In 1958 he was promoted to assistant to beater room superintendent.

Tate Joins Scott H&W Western Sales Division

Robert R. Tate has joined Scott Paper Co.'s Hollingsworth & Whitney western sales division with headquarters in Chicago.

Mr. Tate will function as a sales representative. His responsibilities include selling to paper merchants and converters in the division.

W. H. Aiken

Aiken Takes New Post With Personal Products

William H. Aiken has resigned as director of research of Diamond National Corp. to accept a post with Personal Products, Inc., Milltown, N. J.

He has left to assume his duties as vice president of research and engineering development of the New Jersey manufacturing company. He has been elected to the board of directors of the company.

Personal Products manufactures paper and crepe wadding and crepe and cotton products.

Mr. Aiken came to Middletown in January 1952 as technical director of the Gardner Board & Carton Co. After the firm's merger with Diamond National, he was named research director for the entire organization.

N. H. Christian

R. J. Vechinski

Nekoosa-Edwards Promotes Three Manufacturing Dept. Supervisors

Promotions for three manufacturing department supervisors have been announced by Nekoosa-Edwards Paper Co.

Neil H. Christian was named production manager of the Nekoosa and Port Edwards mills. Raymond J. Vechinski succeeds Mr. Christian as manager of the Port Edwards mill, and Edward G. Gremban moves up to superintendent of the Port Edwards paper mill, replacing Mr. Vechinski.

Mr. Christian, a veteran of 35 years with Nekoosa-Edwards, started work for the company as a pulp tester in August 1924. He served in various supervisory positions in technical and manufacturing departments in both mills and has been manager of the Port Edwards mill since March 1947.

Mr. Vechinski has been with the company since December 1936, working in various laboratory and mill positions. He has been paper mill superintendent at Port Edwards since August 1949.

E. G. Gremban

Mr. Gremban joined Nekoosa-Edwards as a chemical engineer in the technical department in May 1952. He has held various technical positions in the Port Edwards mill since April 1953, and has been assistant paper mill superintendent since July 1956.

Weyerhaeuser Announces Organizational Changes

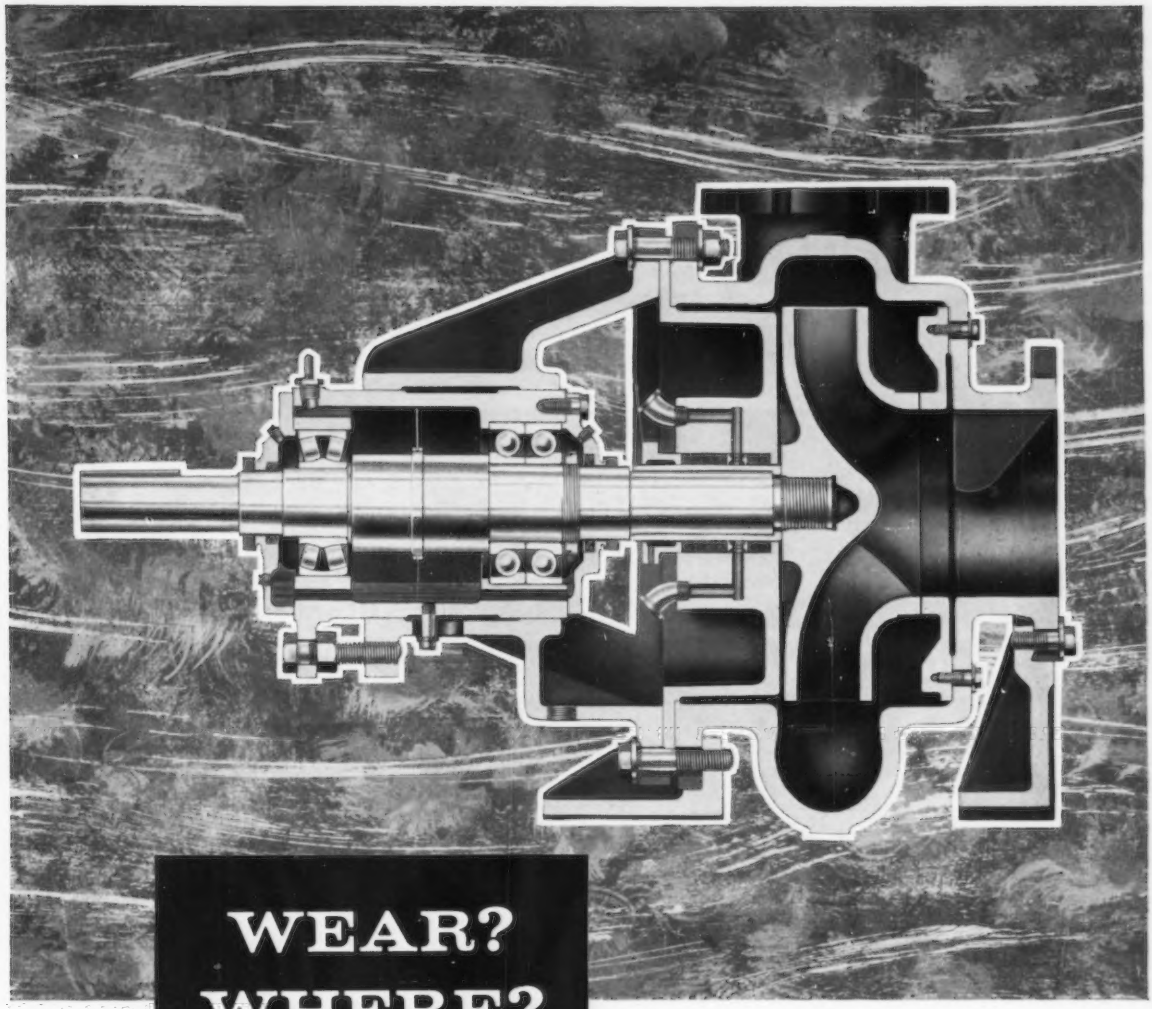
Changes in Weyerhaeuser Co.'s top organizational structure including the appointment of five new divisional vice presidents have been announced by president F. K. Weyerhaeuser. These are: R. E. Baker, Edwin F. Heacox, L. K. Larson, H. L. Simmons and Jon R. Titcomb.

Mr. Weyerhaeuser said, "Since 1957, each product group within the company has been in effect a complete business. The three corporate vice presidents heading these groups will now have their own divisional vice presidents."

George Weyerhaeuser, corporate vice president, heads the renamed lumber, plywood and timberland group which will include the lumber and plywood division and the timberland division.

Vice presidents are Jon R. Titcomb, manufacturing; Robert S. Douglas, marketing; Edwin F. Heacox, timberland division.

John Aram, corporate vice president of the research, new products and Silvatek group, directs the activities of three divisions. Robert D. Pauley is manager, Silvatek division. W. H. Meadowcroft is manager, new products division, and A. S. Gregory



WEAR? WHERE?

There's only one major moving part that can wear in Allis-Chalmers paper stock pumps

Wear hardly has a chance against these heavy-duty pumps. Known in the mills for maximum endurance, Allis-Chalmers PW pumps minimize the risk of crippling shutdowns.

Here's the advantage of simplified design. Parts replacement is never a problem. Disassembly can be made in minutes by swinging out the rotating element, without disturbing suction or discharge piping. Maintenance is readily achieved.

In addition, these pumps offer substantial savings through parts standardization. Three bearing brackets fit 11 pump sizes, and only four other parts vary in size from one pump to another.

For further information on a complete line of durable pumps for the paper industry, call your local A-C office, or write Allis-Chalmers, General Products Division, Milwaukee 1, Wisconsin.

ALLIS-CHALMERS A-C ALLIS-CHALMERS

A-1203-PP

is director, research division. Mr. Gregory is headquartered in Longview, the other men in this and the lumber, plywood and timberland group, are headquartered in Tacoma.

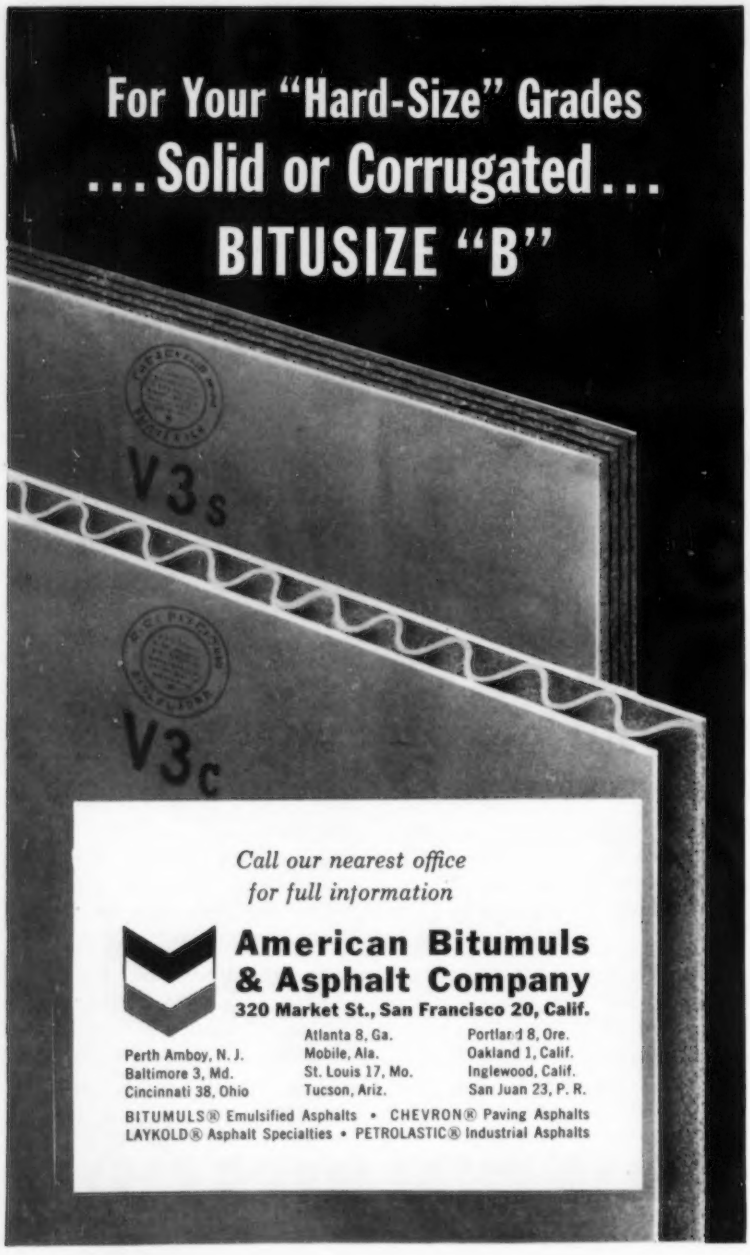
Operations of the pulp, paperboard and container group under Howard W. Morgan, corporate vice president, have been reorganized into four divisions.

Derek G. Currie, vice president-manager, Tacoma, directs the pulp and paperboard division. Also in the division are R. E. Baker, vice president-manufacturing, Tacoma, and L. K. Larson, vice president-sales, New York City.

In the Camden, N. J., shipping container division office, H. M. Kieckhefer is senior vice president. E. K. Radke, Chicago, is vice president, Central region and division co-ordinator. H. L. Simmons, Chicago, will be vice president-sales of the Central region. Also in the shipping container division are R. H. Kieckhefer, Prescott, Ariz., Western region vice president, and C. H. Carpenter, Camden, N. J., Eastern region vice president.

Weyerhaeuser's milk carton division is headed by D. C. Will, vice president-manager, Camden, N. J.

Vice president-manager of the boxboard and folding carton division is T. E. Morriss, Chicago.



J. T. Hegeman

Hegeman Joins Celgar At New Pulp Mill

John T. Hegeman has recently been appointed production manager for Celgar Ltd.'s pulp mill currently under construction near Castlegar at the foot of the Arrow Lakes.

A graduate of Worcester (Mass.) Polytechnic Institute in 1944 with a B.S. in chemical engineering, Mr. Hegeman has worked in research and development with Congoleum-Nairn, and with Brown Co., Berlin, N.H., rising through the latter company as plant chemist, assistant superintendent, mill co-ordinator, technical superintendent, and production manager in the pulp manufacturing division.

Mr. Hegeman has taken an active part in plant expansion programs in the past and brings a wealth of experience with him to Celgar.

Construction of the mill is on schedule and Mr. Hegeman will be assisting Celgar and H. A. Simonds, consulting engineers for the project, with planning until the mill begins to operate in 1961.

Promotions at Westvaco Plant Announced

Three promotions were announced for the Mechanicville plant of West Virginia Pulp & Paper Co.

E. Horton Girdler, graduate of RPI, Troy, has been promoted to the new position of director of product development for the Mechanicville mill.

Harrison J. Pregent has been promoted from night foreman in the machine room, to the position of op-

- **Quiet Running**
- **Easy, Economical Installation**
- **Maintenance-Free Long Life**
- **Compact**
- **Lighter Weight**
- **Ruggedly Built**
- **Wide Range of Capacities**

"Buffalo" Type "B" Vaneaxial Fan

"BUFFALO" AXIALS SIMPLIFY MANY DIFFICULT INSTALLATIONS

"Buffalo" Axial Flow Fans are easily and economically installed because of their rugged, lightweight compactness. In all but the largest sizes, no heavy foundations or structural support are needed. "Buffalo" Axials can be installed as part of the pipe or stack in hood, vat and other roof exhaust systems.

Many ordinarily difficult installations are greatly simplified by mounting "Buffalo" Axials in straight duct runs. Duct-size, they save valuable space.

With "Buffalo" Axials, you are assured a minimum of service calls. Superb engineering and husky construction contribute to long, trouble-free life.

The "Buffalo" reputation for consistent high quality is backed by over 82 years of air-moving experience.

"Buffalo" Axials are quiet and highly efficient in many space-saving installations. These include paint spray booth exhaust, circulation of chilled air for quick-freezing, boiler room cooling, for supply and exhaust in textile plants, and many other uses. Choose from a wide variety of sizes and types to suit the needs of your installations.

Remember, when you specify "Buffalo" Axial Flow Fans, you bring your customers the finest possible performance. Call your "Buffalo" engineering representative, or write for Bulletin 3533-H.

BUFFALO FORGE COMPANY
Buffalo, N. Y.

Buffalo Pumps Division, Buffalo, N.Y.
Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

VENTILATING • AIR CLEANING • AIR TEMPERING • INDUCED DRAFT • EXHAUSTING • FORCED DRAFT • COOLING • HEATING • PRESSURE BLOWING

erating assistant in the product development group.

Joseph M. Whalen has been promoted to the position of night foreman in the machine room.

In announcing the promotions, division manager George N. Hoover stated "the development of new products to be made at this mill is of ever-increasing importance to our operations; and we must use all of our skills to develop new and better grades—specialty papers of exceptional quality."

One transfer was mentioned with the announcement of the three promotions: J. E. Liddy has been moved from the mill's commercial analysis section to serve as product development representative.

Guest Joins Brown Co. As Asst. Manager

Karl M. Guest, formerly of Demopolis, Ala., where he was connected with Gulf States Paper Corp., has been made assistant manager of Pulp Manufacturing at Brown Co.

Mr. Guest, who graduated from Clemson University in 1936, served with the Army Chemical Warfare Division in the South Pacific during World War II, and has occupied various technical and supervisory positions in the pulp and paper industry with Union Bag, National Container and Gulf States.

K. M. Guest

Keep your eye on our Classified Advertising Section

C-Z Announces Personnel Changes

Crown Zellerbach Corp. has promoted Maurice Burke, organization analyst, C-Z headquarters, to division industrial engineer.

John Glenn, assistant steam power superintendent, at Antioch, has been promoted to steam power superintendent.

Also announced are changes in the C-Z research department at Camas, Wash.

Charles Sassenrath has joined the department as chemical products research engineer.

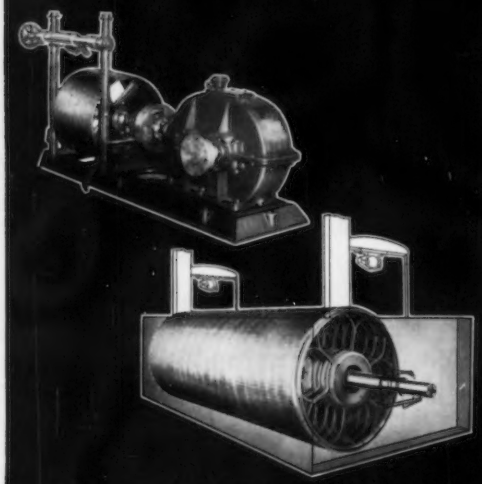
Thomas Cooper, a graduate of Oregon State College, where he also held a teaching fellowship, joins the department as associate chemist working on multiwall bag problems.

James Cormack, research chemist, advances to industrial fermentations research project leader; Don Burnett, research chemist, to wood products research project leader; Thomas Wilson, research chemist, to chief of the newly organized analytical laboratory; William West, assistant research chemist, to associate engineer; and Sangho Back, associate chemist, to research chemist.

Specify LG ...

CUSTOM-BUILT PAPERMILL MACHINERY

DESIGNERS • ENGINEERS • ERECTORS



ALSO COMPLETE REPAIR and RECONDITIONING

Services available for all types and makes of paper machinery. Discuss your problem with a qualified L-G engineer, or write us outlining your requirements.

CUSTOM-ENGINEERED MACHINE DRIVE

To meet your mill's specific drive requirements. Built of standard components to insure lower initial and replacement parts cost. Available in all sizes.

IMPROVED CYLINDER MOLD DESIGN

Offers greater overall strength and longer life. Improved rigid spider supports heavier rods, permits greater tensioning of wire wrapping. Complete with custom vats to your specifications.

IMPROVED TYPE SUCTION ROLLS FOR EVERY PURPOSE

Please send me your new descriptive brochure

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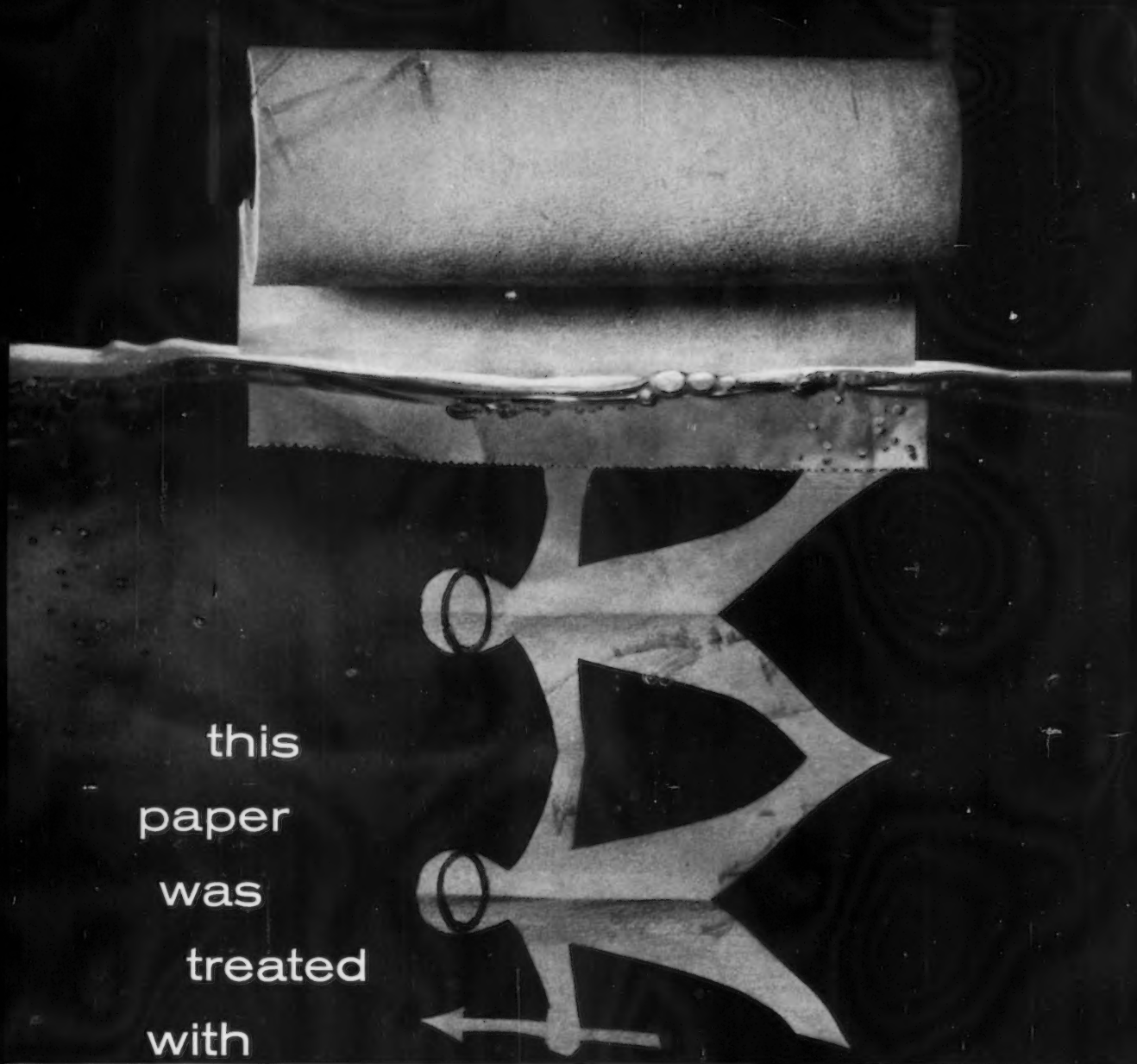
LAYTON-GREENFIELD, INC. (Dept. PTJ)

COATESVILLE, PENNSYLVANIA

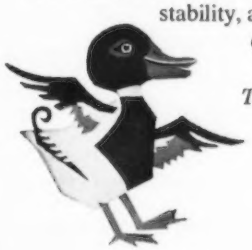


SCRIPTITE* 40

Scriptite 40, a new concept in urea-formaldehyde paper resins, imparts high off-machine wet strength with less resin add-on. Made more cationic, this water-soluble resin is strongly attracted to the cellulose, assuring greater application efficiency. Formulated for fast cure, Scriptite 40 also improves dry tensile strength, dry mullen, wet rub resistance, dimensional stability, and folding endurance. For samples and technical data, write: Monsanto Chemical Company, Plastics Division, Room 1072, Springfield 2, Mass.

Monsanto

*SCRIPTITE, LYTRON: Reg. U.S. Pat. Off.



The Monsanto line of paper resins also includes

SCRIPTITE 54 *outstanding water resistance, both wet and dry rub resistance.* **SCRIPTITE 55** *a low viscosity resin for improved water resistance, wet and dry rub resistance with easy handling.* **SCRIPTITE 52** *in combination with formaldehyde, gives water resistance to folding boxboard and jute liner.* **SCRIPTITE 50** *unsurpassed printability, improved surface characteristics on boxboard.* **SCRIPTITE 33** *melamine wet-strength resin.* **SCRIPTITE 45** *new thermosetting resin for stabilization of paper.* **LYTRON*** *water dispersal resin polymers for coatings.*

A NAPKIN FOLDER WITH

The Labors of Hercules

Better Papermaking Chemicals
Better Technical Assistance

***Mythology**—Of all twelve labors that Hercules was called on to perform to secure his reputation for strength in Greek mythology, one of the most pleasant was probably the securing of Hippolyte's magnificent Girdle. The King of Argos sent Hercules to take it from Hippolyte, the Queen of the Amazons. Despite the interference of the Goddess Juno, Hercules added another victory to his record during the encounter.*

***Today, trained men to help you**—More than a half century of experience in the manufacture of quality chemicals for the paper industry has earned Hercules a reputation as a leader in technology. To place this information at your disposal and to assist in the solution of your own specific problems, Hercules maintains a staff of more than 60 trained sales and service representatives. These men and their backgrounds are summarized in a new Hercules booklet. If you haven't received your copy, just write to Hercules. These men are always available to labor in your behalf.*

PP59-7

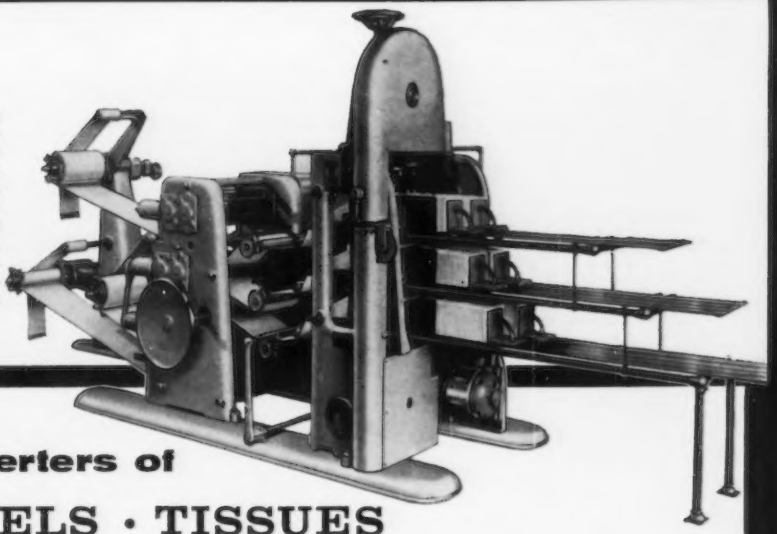
Paper Makers Chemical Department

HERCULES POWDER COMPANY INCORPORATED

Wilmington 99, Delaware

A NAPKIN FOLDER WITH TRIPLE EMBOSSER

Pacemaker for the industry, this machine produces regular or facial quality napkins (and other paper or cellulose products) of all standard sizes in perfectly folded squares. Rotary in operation, it handles one to four parent rolls simultaneously and produces up to 2400 completed printed and embossed napkins per minute! Multi-color oil or flexographic ink printing and embossing units can be furnished or added as required. Heavy duty construction, high production speed, dependability, low original cost plus low maintenance expense makes this machine the most popular napkin producer in the industry.



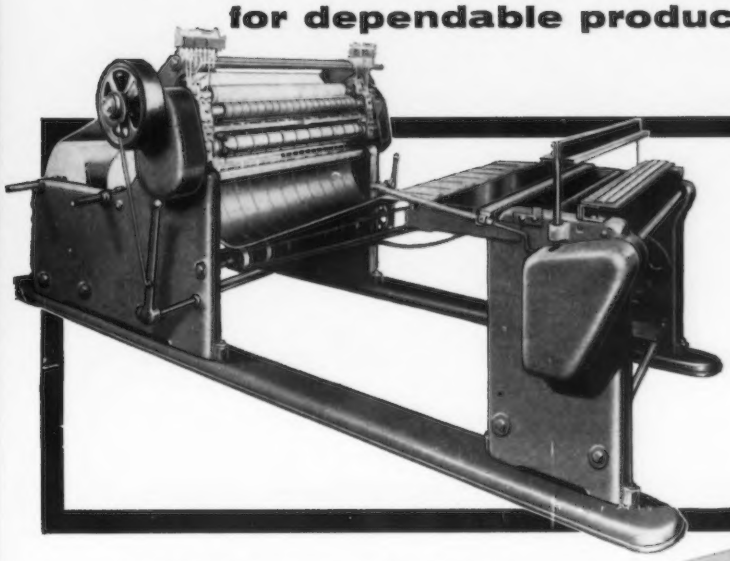
Leading converters of

NAPKINS · TOWELS · TISSUES

rely on these

HUDSON-SHARP "workhorses"

for dependable production capacity

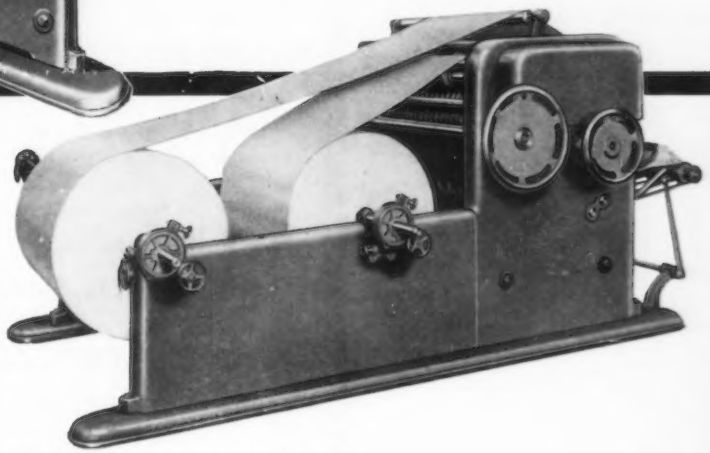


ROTARY TISSUE INTERFOLDER

Production of single or double-ply interfolded toilet tissues in single or multiple folds reaches unprecedented new highs with this modern Hudson Sharp machine. Sturdily constructed and completely rotary in operation it carries paper from parent rolls through feed rolls, into folding cylinders, and continuously delivers a product of exact sheet count to the packaging unit. Equipped with a semi-automatic banding unit, one operator easily handles the machine's entire output. Embossing units can be added if desired.

ROTARY TOWEL AND WAX INTERFOLDER

Designed to produce interfolded towels in any standard size, this machine produces from 10 to 12 cases, per towel width, per hour! Completely rotary in operation, all necessary adjustments are simple to make and easily accessible. Furnished in any widths up to 60" in all standard sizes and folds. Besides towels, this machine is practically adaptable for interfolding wax papers, glassines, butcher wraps, delicatessen papers and others. Write for complete information on any of these popular Hudson Sharp machines that are continuously increasing converting production throughout the industry.



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FMC Packaging Machinery Division

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GASPESIA IS YOUR QUALITY PULP

Did you know that Gaspesia makes pulp for letterhead and envelope stock as well as glassine windows?

For envelopes and letterheads, *Gaspesia Standard* is your quality pulp. For quality windows or any other glassine use, it's *Gaspesia Glassine*. Make Gaspesia the sole source for your sulphite requirements.

Location on the Gaspé Coast, within easy reach of waterways to the whole world, affords low-cost water transportation to every market. Shipping time to Europe is about half that from the Pacific Coast. Transcontinental rail systems speedily deliver carload quantities to United States and Canadian markets.

Have you tried Gaspesia?

GASPESIA SULPHITE COMPANY LTD.

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SOLD BY: **Anglo Paper Products, Ltd.**
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Fitting contrasts between background and pattern, sharp opaque pastels, subtle gradation of tints . . . these are important things that influence her choice. They are determined by white pigmentation. It takes uniform titanium dioxide white pigment to make these effects unvarying in mile upon mile of wallpaper. Even

Her decision involves your choice in white pigments

with the closest control of all other factors in manufacturing, you can't be sure of the results dependent upon white pigment, unless your choice is TITANOX®. The proven anatase titanium dioxide TITANOX-A-WD is used as brightener and opacifier of the paper stock and of coatings and colors too . . . and the stronger rutile titanium dioxide TITANOX-RA-50 is on call for more difficult tasks in brightening and opacifying, especially when plastics are involved. These are the pigments that help capture and hold discriminating buyers.

As it is with wallpaper, so it is with all other paper products that must be pigmented with titanium dioxide . . . TITANOX is your best choice. Titanium Pigment Corporation, 111 Broadway, New York 6, N. Y.; offices and warehouses in principal cities.

TITANIUM PIGMENT CORPORATION
SUBSIDIARY OF NATIONAL LEAD COMPANY
IN CANADA: Canadian Titanium Pigments Limited, Montreal

Steps in making a purchase

Open letter to suppliers who serve the paper and pulp industry

The six basic steps of making a sale have been analyzed and publicized until they are familiar to most of us:

1. Make contact with prospect
2. Arouse his interest
3. Create preference for your product
4. Submit proposal with terms, etc.
5. Close the order
6. Provide service, keep the business, get re-orders.

It seems to me that the same steps, or counterparts of them, are taken by mill men when they make a purchase.

The first step is to have some means of contact with potential suppliers. Advertisements in PAPER TRADE JOURNAL, the publication you are reading right now, provide one basic means of constant contact. Lockwood's Directory of the Paper and Allied Trades, provides another such contact.

But contact with potential suppliers is only a pre-requisite. A purchase doesn't really begin until a need is recognized. After that the buyer – the potential buyer – actively seeks information that will help him decide which type of product, and which size and model and make, will best meet the need.

It is at this stage that information in ads in a publication like PAPER TRADE JOURNAL is carefully studied. At this same stage Lockwood's Directory is used to identify suppliers. The purchaser usually wants to learn all he can about your product – and your competitor's product – *before* he alerts suppliers to the fact that he's actively in the market.

* * *

Among the thousands of mill men who will read this copy of PAPER TRADE JOURNAL this week there are some – probably hundreds – who are at the stage of actively searching the advertisements for product information that will help them decide which salesmen to call in.

How much help your fellow reader gets from your company is something for you and your advertising department to think about seriously. Are your advertisements giving these *active searchers* the information about your product they are looking for?

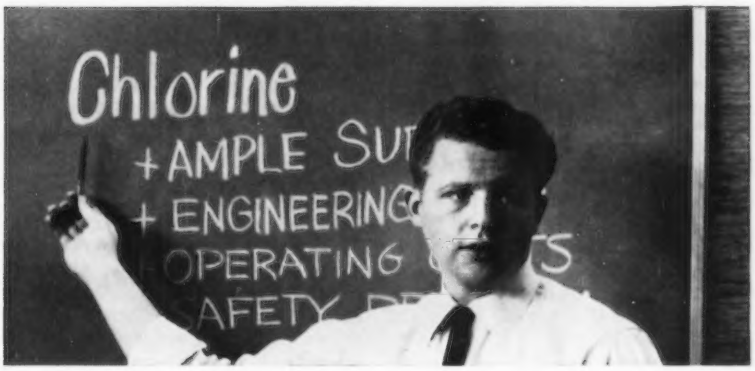
George E. Lockwood PUBLISHER

PAPER TRADE JOURNAL

P.S. Your fellow readers of PAPER TRADE JOURNAL are your customers and prospects.

BRIEFS

on 4 chlorine "pluses" . . . a caustic soda guide . . . 3 built-in sodium sulfide controls . . . an important sulfide drum



You get these 4 pluses when you ask for *Hooker* chlorine

1. Engineering help. You can get aid from Hooker engineers in planning or revamping your chlorine handling system.

2. Operating hints. Our technical service men can often spot—and help you fix—troubles before they become serious. You get periodic technical service visits.

3. Safety programs. We keep you up to date on the safest and most economical handling methods.

4. Ample supply from Hooker plants which bridge the continent: Niagara Falls, Montague, Mich., Tacoma, and North Vancouver. And, of course, you get a chlorine that meets high industry standards when you ask for Hooker.

Send the coupon for our Chlorine Manual, 76 pages of useful facts on chlorine, its handling and usage.

Phone or write the nearest Hooker sales office for further information on how we can help you.

Fact-filled guide book gives data on handling caustic soda safely

Here is a practical, easy-to-use book on the safest ways to store and handle liquid caustic soda.

It tells you how to unload a tank car, gives methods for diluting caustic soda to different strengths, tells how to store efficiently and with least risk of iron pickup.

Large, detailed diagrams show you the equipment to use. 18 charts, graphs and tables help you foretell how caustic soda will act under a wide range of working conditions.

Get your free copy by checking the coupon.

Why our sodium sulfides are always full strength

Take a look at this drum.

It was planned to bring Hooker sodium sulfide and sulfhydrate to you at full strength and to help you keep it that way.

This drum is lacquer-lined. It is sealed with lacquer around the cap. Six sturdy lugs hold the cap fast during handling and storing.

There's another reason you always get Hooker sodium sulfides at full strength—we use only new containers.

Check the coupon for specifications.

For more information on chemicals mentioned on this page, check here:

☐ Hooker Chlorine Manual ☐ Sodium Sulfide Data Sheet

☐ Hooker Caustic Soda Guide ☐ Sodium Sulfhydrate Data Sheet

Clip and mail with your name, title, and company address.

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1811 Forty-seventh Street, Niagara Falls, N. Y.

Sales Offices: Chicago Detroit Los Angeles New York Niagara Falls Philadelphia Tacoma Worcester, Mass.

In Canada: Hooker Chemicals Limited, North Vancouver, B. C.

HOOKER CHEMICALS PLASTICS

World Future Pulp, Paper and Board Demand, Supply and Trade

In 1965 demand will have increased by 40 per cent over 1958, and by 1975 over 100 per cent. New capacity expenditures of $1 billion per year will be needed up to 1965 and then $1.5 billion per year to 1975.

A world conference was held in Rome in September on pulp paper and paperboard demand, supply and international trade under the sponsorship of the FAO. The following countries were represented at the Conference: Argentina, Australia, Brazil, Canada, West Germany, Finland, France, India, Italy, Japan, Norway, Sweden, South Africa, Great Britain, United States of America and Uruguay. Also taking part in the Conference were representatives of UNESCO (United National Educational, Scientific and Cultural Organization) and OEEC (Organization for European Economic Co-operation).

Principal purpose of the Conference was to review and discuss the various reports on pulp and paper prepared by the FAO staff. These reports included "Comparison of Earlier Demand Forecasts," "A Forecast of Demand for the Period of 1975," "Meeting Future Needs" and "Trends in Pulp and Paper Trade."

Principal findings of the Conference are summarized in the following text and tables.

The FAO staff has not included building papers and boards in its reports. All tonnage figures referred to herein are metric.

Demand for Paper and Board

The group discussed various attempts at forecasting pulp and paper requirements which had been made by international and national agencies during the past decade. A review of these demand forecasts led to the following conclusions:

1. Practically all of the earliest attempts at demand projection had under-estimated—in most cases seriously—the actual course of consumption. This was particularly true of those projections which were in the nature of informed guesses rather than based upon explicit statistical procedures. While in general the more sophisticated approaches had yielded superior results, not all these had been successful in predicting closely the actual course of consumption. In these instances, however, it was usually possible to see clearly the reason for the discrepancy between projected demand and actual consumption; e.g., the economic growth rate or the population trend had been different from that assumed, or incorrect relationships between consumption growth and income growth (income elasticities) had been used.

2. Two developments had made possible an improvement in the techniques of demand projection during the decade. Firstly, there had been a considerable improvement in the scope and geographical coverage of the statistical information necessary for the prosecution of demand studies; e.g., pulp and paper production and consumption figures, national income data, population data, etc. Secondly, considerable experience has been acquired in carrying out demand studies for other commodities and some of this experience has been applied to the pulp and paper field.

3. The most promising approach, particularly in studies of regional consumption and in cases where paper consumption statistics are avail-

TABLE I

ESTIMATES OF PAPER AND BOARD DEMAND: 1965 and 1975

***Building Paper and Board Not Included**

1,000 metric tons

REGION	Economic Growth Rate Per Capita Per Cent Per Year		Newsprint			Other Paper and Paperboard*			Total Paper and Board*		
	1955-65	1965-75	1955	1965	1975	1955	1965	1975	1955	1965	1975
1. North America	2.25	2.00	6,351	8,300	10,300	25,171	35,400	47,000	31,522	43,700	57,300
2. Latin America	2.50	2.00	495	1,000	1,800	1,327	2,500	4,700	1,822	3,500	6,500
3. Western Europe	2.50	2.00	2,648	4,200	6,000	10,505	15,500	21,200	13,153	19,700	27,200
4. Eastern Europe	...see text...		222	450	900	1,668	3,200	5,700	1,890	3,700	6,600
5. U. S. S. R.	...see text...		307	850	1,800	2,168	5,300	10,600	2,475	6,100	12,400
6. Africa	2.00	2.00	102	190	350	384	700	1,300	486	900	1,600
7. Near and Middle East	2.00	2.00	31	65	120	108	210	400	139	280	520
8. Far East (Excl. 9-10)	2.00	2.00	221	430	850	609	1,160	2,300	830	1,600	3,100
9. Japan	4.50	4.00	454	950	1,600	1,695	3,600	6,400	2,149	4,500	8,000
10. China Mainland	...see text...		141	500	1,600	727	2,400	7,200	868	2,900	8,800
11. Oceania	2.50	2.00	310	450	600	450	800	1,200	760	1,300	1,800
WORLD TOTAL			11,280	17,400	26,000	44,810	70,700	108,000	56,090	88,000	134,000

Note: Totals may not add up because of rounding of figures in the World Total.

able only for broad categories of paper, lay in establishing a relationship between the growth in paper consumption and the growth in the general economy.

In reviewing, region by region, estimates of future paper and board demand presented in the Secretariat and summarized in Table I, the experts offered the following comments:

North America

Demand projections recently carried out in Canada, though prepared on the basis quite different from that used by the Secretariat (including a somewhat lower economic growth rate to 1965), had yielded figures extremely close to those included in the Secretariat Paper. Similarly, a recent U. S. projection (by APPA), when adjusted to eliminate building paper and board (not included in the Secretariat estimates), also came close to the Secretariat's estimates, Though the U. S. projection had been based on a somewhat lower rate of economic growth and a slightly higher population trend. In general, the North American projection envisaged a somewhat greater rise in paperboard requirements than in the Secretariat paper. It was the view of the North American participants that the Secretariat's estimates represented a reasonable assessment of the demand trend in the North American region.

Latin America

Participants from Latin America endorsed the estimates for the region submitted by the Secretariat with the minor reservation that the growth rates selected might prove to be slightly low. It was noted that a further rapid increase in paper requirements was expected in Argentina, where paper consumption has been artificially restricted during much of the post-war period.

Western Europe

They noted that estimating the future trend of demand in Western Europe presented special problems. In interpreting the past trend it had to be borne in mind that much of the region's capacity had been destroyed during the war, and that restrictions on consumption had continued in a number of countries until quite recently. At the same time, economic growth had been extremely rapid. Factors other than income growth had thus influenced the recent rise in consumption; the problem was to quantify these other factors and assess their future impact. The estimate included in the foregoing table incorporated a small arbitrary adjustment to take account of these factors.

The Secretariat had prepared an alternative estimate on the assumption that these factors would continue to influence the course of demand though less strongly than in the course of the past decade. This led to the following figures for 1965:

Newsprint	4.60	million tons
Other papers and board	16.75	" "
Total paper and board	21.35	" "

Oceania

The Australian participant agreed that the estimates for Oceania represented the right order of magnitude, but suggested that for the year 1975 the newsprint estimate might prove slightly low and that for paperboard somewhat high.

The Far East

The validity was recognized of arguments submitted by the Asian participants criticising the Secretariat figures as being serious underestimates, but hesitated to pronounce themselves on how far these figures should be augmented.

Japan

The Japanese participants pointed out that the economic growth rates assumed (4.5 and 4 per cent per capita for the current and succeeding decades respectively) were substantially lower than those provided for in the current development plan.

Current plans for paper production in Japan envisaged an output of 5.4 million metric tons for 1965 and 10.5 million metric tons by 1975 compared with the current (1958) production of 3.14 million metric tons.

These plans correspond to per capita income growth rates of approximately 5.65 per cent to 1965 and 5.3 thereafter until 1975. Doubt was expressed as to the possibility of maintaining these high growth rates through two decades.

"Current plans for Japan envisage an output of 5.4 million metric tons of paper for 1965 and 10.5 million tons by 1975, compared with 1958 output of 3.14 million tons."

Far East, excluding Japan and Mainland China

The Indian participants pointed out that government and industry plans in India provided for a much more rapid rise in paper production and consumption than would correspond to income growth, and, hence, than provided for in the Secretariat estimates. This was a deliberate policy to provide the paper necessary to fullfill the literacy campaign on which India was engaged. Similar factors certainly influence, though perhaps to a lesser degree, the trend of demand in the rest of this subregion. India's plans envisaged a domestic paper production by 1965 of 150 thousand tons of newsprint and 700 thousand tons of paper and board. In the ensuing decade, to 1975, an annual rise in production of the order of 10 per cent was foreseen. It was agreed that the estimates for the Far East (excluding Japan and Mainland China) required some upward revision.

"Indian government and industry plans provide for a much more rapid rise in paper production and consumption than would correspond to income growth, and, hence, than provided for in the FAO estimates."

U.S.S.R., Eastern Europe and Mainland China

The Secretariat explained that the relationship between income growth and the rising paper consumption was very different in countries with planned economies from that which pertained in free enterprise econo-

TABLE II
ESTIMATED WASTE PAPER RECOVERY RATES
PER CENT OF PAPER CONSUMPTION

	1955	1965	1975
North America	26	26	26
Latin America	20	21	23
Western Europe	25	25	25
Eastern Europe	22	23	24
U. S. S. R.	14	16	18
Africa	9	10	12
Near and Middle East	8	9	10
Far East excluding Japan and Mainland China	17	18	18
Japan	25	28	29
Mainland China	12	14	16
Oceania	12	12	12

mies. Planned production figures (which closely approximate to consumption) covering the next few years were available for these regions; these plans fell far short of the expansion that might be expected to attend the planned rise in national income. The Secretariat had, therefore, taken the planned paper production figures and had inferred therefrom a theoretical economic growth rate—in each case considerably below either past or projected income growth rates. This theoretical economic growth rate, adjusted downwards for the decade 1965 to 1975 in the case of the U.S.S.R., had then been used to project paper requirements for 1965 to 1975.

It was observed that the review conducted of the Secretariat estimates, region by region, led to the conclusion that the global estimates of the likely trends in world demand for paper and board by the years 1965 and 1975 could be broadly accepted. A world requirement of 88 million tons around the year 1965 and of 134 million tons a decade or so later, it was noted, represented an expansion rate somewhat lower than that which had prevailed in the recent past.

Pulp Requirements

Having reviewed the estimates of future paper and board demand submitted by the FAO staff, the group considered the pulp requirements implied by these estimates.

North American and Scandinavian participations indicated that a fiber requirement of 1.06 air dry tons on average per ton of paper and paperboard was slightly higher than current practice in their areas. Having regard to practice in Western European pulp deficit countries and likely future trends, this figure was considered acceptable for projecting pulp requirements in North America and Western Europe. For other regions of the world, the figure of 1.08 tons was accepted as a reasonable average for the regions as a whole.

The participants discussed some of the factors likely to influence waste paper recovery rates in the future. It was pointed out that in several countries a greater relative use of virgin fiber was required to meet consumer preferences. The development of new types of paper incorporating plastic and other materials had added to the difficulty and cost of sorting and cleaning for re-pulping. On the other hand, in most regions a relatively more rapid expansion was foreseen in the output of those paper categories in the production of which waste paper can be used in substantial amounts. The quantities of waste paper used depended on the cost of virgin fiber relative to that of waste paper; a sustained change in this relative cost might lead to higher or lower recovery rates.

On balance it was believed that, for North America, Western Europe and Oceania, it would be reasonable to assume a continuation of current recovery rates. In other regions, were rising paper consumption per capita will greatly facilitate salvage, a rise in the recovery rates must, as indicated in the Secretariat paper, be assumed.

Capacity

The discussion next turned to the definition of capacity. It became evident in the course of the discussion that the capacity data submitted to the Secretariat had been compiled on bases that differed from country to country. Some of the difficulties of arriving at an agreed concept of capacity for pulp and paper mills were touched upon.

The meeting agreed that, in the pulp and paper industries, as in other basic industries, failure to allow for a marginal reserve was as dangerous for market stability as an excessive reserve capacity. It was observed that since the war when demand was buoyant the industry in several countries had operated at close to rated capacity (as defined above) for prolonged periods: this was in marked contrast with pre-war experience, and had undoubtedly encouraged investors, led to the multiplication of capacity expansion plans, and contributed to current excess capacity in North America and Western Europe.

A comparison of rated capacity and production figures in 1958 showed operating ratios of 84 per cent in North America and 83 per cent in Western Europe for the newsprint industry, and of 82 per cent in North America and 89 per cent in Western Europe for other sectors of the paper industry. In the rest of the world the operating ratio averaged 90 per cent for newsprint and 85 per cent for other sectors.

Allowing 5 per cent as a marginal reserve capacity, these figures indicated that in relation to current demand there existed in the year 1958 in the several regions excess capacity as shown in Table IV.

Expansion plans already afoot in the pulp and paper industry were sufficient to meet the major part of the increase in demand which may be expected up to 1965.

Raw Fiber Supply

Long-term upward trend in consumption of pulp and paper may in some areas give rise to problems of raw material supply. The group briefly reviewed, region by region, the possibility of industry obtaining the fibrous materials which would be required to satisfy demand as projected to 1975. It noted that improved utilization of long fibers and various technical development in the pulp industry will serve to reduce depend-

"A world requirement of 88 million tons around the year 1965 and 134 million tons a decade or so later, represents an expansion rate somewhat lower than that which had prevailed in the recent past."

ence on long-fibered material by permitting a greater use of short-fiber material derived from broadleaved woods, bagasse and agricultural residues, and that this trend would to some extent mitigate the supply problem in areas deficient in conifers.

In North America recent exhaustive surveys appeared to confirm that no major problems were likely to arise by 1975. In Western Europe a recent survey carried out by the European Forestry Commission of FAO seemed less reassuring, since only a modest increase in total industrial wood output was foreseen.

Though the Commission itself had noted that its estimates of future output were conservative, and that there were many elements of flexibility in Europe's wood supply, they foresaw the need for intensive efforts in the coming years if the longer term needs—to the end of the century—of industry were to be met. Though considerably more use is to be made in Eastern Europe of non-wood fibers, felling forecasts and pulping capacity expansion plans indicate that serious problems may arise in covering pulpwood needs.

Latin America has ample resources of short fiber, and though in the short run difficulties may be experienced in satisfying long fiber needs these may eventually be overcome by supplementing natural conifer resources with plantations. In central and south Africa short fiber resources are ample and extensive planting of conifers seems likely to take care of long fiber needs; the fibrous materials available in North Africa, however, are insufficient and limited to esparto, eucalyptus, bagasse and other agricultural residues. The Near and Middle East is chronically short of fiber and, in spite of the use of non-wood materials and the limited forest resources not yet exploited, only extensive planting can provide a basis for long term expansion of domestic pulp production.

Many countries in the Far East already experience difficulties in fiber supply. The industry in Japan is confident that its future needs can be largely met from forest resources still untapped and through increasing use of hardwoods, though a continuing need of pulpwood imports is foreseen; energetic forestation programs are underway. In India the industry is already based mainly on non-wood fibers, principally bamboo; a greatly increased use of bagasse is foreseen. Even so, fiber supply is likely to remain the principal preoccupation of the pulp industry in that country. In Oceania the pulp industry is presently based on coni-

TABLE III

ESTIMATED EXISTING CAPACITY AND CURRENT EXPANSION PLANS, BY REGIONS

	Newsprint	Other paper and paperboard	Total paper and paperboard	Paper Pulp
	RATED CAPACITY 1958			
North America	8.521	32.533	41.054	33.730
Latin America	150	1.500	1.650	830
Western Europe	3.910	14.750	18.660	14.750
Africa	——	270	270	175
Near and Middle East	15	65	80	50
Far East	700	3.685	4.385	2.700
Oceania	170	400	570	480
Rest of the World	980	6.150	7.130	6.565
TOTAL	14.446	59.353	73.799	59.280
	CURRENT EXPANSION PLANS			
	Newsprint	Other paper and paperboard	Total paper and paperboard	Paper Pulp
	1,000 metric tons			
North America	678	3.238	3.916	1.240
Latin America	405	915	1.320	1.410
Western Europe	740	2.965	3.705	4.950
Africa	70	90	160	345
Near and Middle East	40	285	325	110
Far East	480	1.140	1.620	960
Oceania	70	190	260	150
Rest of the World	945	5.215	6.160	5.435
TOTAL	3.428	14.038	17.466	14.600
	ESTIMATE OF FUTURE RATED CAPACITY			
	Newsprint	Other paper and paperboard	Total paper and paperboard	Paper Pulp	Estimated Target Date
North America	9.200	35.770	44.970	34.970	1961/62
Latin America	560	2.420	2.980	2.240	1964/65
Western Europe	4.520	17.720	22.240	19.690	1963/65
Africa	70	360	430	520	1964/65
Near and Middle East	60	360	420	160	1964/65
Far East	1.180	4.830	6.010	3.660	1964/65
Oceania	240	590	830	630	1964/65
Rest of the World	1.930	11.370	13.300	12.090	1965
TOTAL	17.760	73.420	91.180	73.960	

TABLE IV

ESTIMATES OF EXCESS CAPACITIES[1] IN 1958

	North America	Western Europe	Rest of the World[2]	Total
Newsprint	.97	.47	.09	1.53
Other paper and board	4.36	.98	.72	6.06
Total paper and board	5.33	1.45	.81	7.59
Pulp[3]	4.9	1.5	.4	6.8

[1]Normal capacity (i.e. 95 per cent operating ratio) less actual production.

[2]Figures for the rest of the world are largely conjectural; they have been calculated on a basis of a 5 per cent marginal reserve, admittedly an inadequate margin in many areas outside Europe and North America.

[3]See qualification in the text.

fer plantations in New Zealand and on eucalyptus, supplemented by long-fiber pulp imports, in Australia. Planting programs under way or being contemplated shall secure the long-term raw material basis of the industry.

The U.S.S.R. has no shortage of suitable fibers, since besides possessing the world's largest reserve of conifers it has large areas of unexploited broadleaved forest and a great variety of non-wood fibers. Mainland China, deficient in forests, makes extensive use of straw, bamboo and other non-wood materials; the long-term outlook is good, since very large afforestation programs are under way.

Concluding the brief review of the long-term fiber supply problem, it was noted that difficulties already existed, or might arise by 1975, in Western and Eastern Europe, in the Near and Middle East and in areas of the Far East.

Investment Required

The demand projections not only raise questions of future fiber availability, but imply heavy investments in industry. The rise in regional and world demand foreseen for the decade 1955-65 corresponds to the installation of additional industrial capacity at an average annual cost (at current prices) of more than a billion dollars. In the ensuing decade, annual investment requirements may rise to an average of some 1½ billion dollars (again at current prices). These figures do not include the substantial investment that will be necessary to develop the fibrous material resources. Over the two decades, roughly half of this investment would be required in North America and Western Europe. It is in the deficit regions, however, that investment needs will rise most rapidly. In Latin America, for example, approximately 65 million dollars would be required annually up to 1965 on average, and 120 million dollars annually between 1965 and 1975. It thus seems that, having regard to the limited capital resources available in developing countries and the competing claims on those limited resources, there will be both scope and need for investment from overseas.

International Trade

It was noted that international trade in pulp and paper had grown to the point where, at close to 3 billion dollars, it accounts for over 3 per cent by value of total world trade; this compares with less than 5 per cent for iron and steel, 10 per cent for all fuels; and 16 per cent for all trade in food.

Trade in pulp and paper plays a vital role in the economies of the major pulp and paper-exporting countries, accounting, for example, for one-fifth by value of all exports from Canada, one-fourth from Sweden, and nearly one-half from Finland. It is also of vital importance to the deficit regions and there are few countries in the world that do not depend in some degree on imports to meet their essential needs.

During the past decade, determined efforts have been made in many of these countries to increase their domestic production of paper. As a consequence, the dependency on imports in these regions has fallen considerably as shown in Table V.

Nevertheless, in spite of the steps taken to increase their domestic supplies, net imports of paper into these regions have risen by 40 per cent to 2 million tons over the last decade, while net imports of pulp have more than doubled, now exceeding 600 thousand tons.

In recent years the countries with fully planned economies have participated increasingly in international trade in pulp and paper. In 1958, for example, the U.S.S.R. and Eastern Europe exported close on 300,000 tons of both pulp and paper. These exports, however, were balanced by pulp and paper imports of roughly the same order. Information available to the Secretariat suggested that net export availabilities in these areas on a scale likely to affect world market stability were not likely to arise in the coming years, having regard to the rapidly rising domestic requirements in those regions.*

The upward trend in inter-regional trade in the post-war decade has been accompanied by rapidly expanding intra-regional trade in North America and Western Europe. Thus, the total level of world trade in wood pulp now stands at 7½ million tons, as compared with 4½ million tons a decade ago and 5½ million tons before the war, while world trade in paper and board has reached over 10½ million tons, compared with 6½ million tons a decade ago and 6 million tons before the war.

Several participants expressed the view that current trends towards economic integration in Europe and elsewhere might eventually lead to significant changes in the trade flows described in the Secretariat paper. Participants from countries associated with both the European Economic Community and with the "Outer Seven" pointed out that the arrangements contemplated or already initiated were in no way intended to lead to the establishment of "closed economies" but rather to serve as steps towards an expanding world trade. This process would be accelerated by the rising requirements which would flow from the economic growth that economic integration was expected to foster.

"In the pulp and paper industry, as in other basic industries, failure to allow for a marginal reserve was as dangerous for market stability as excessive reserve capacity."

"It is in the deficit regions that capital investments must rise most rapidly. In Latin America, for example, approximately $65 million a year will be required up to 1965 on average, and $120 million a year from 1965 to 1975."

TABLE V
PAPER IMPORTS AS PER CENT OF CONSUMPTION

	1946-48	1956-57
Latin America	54	31
Africa	89	62
Near and Middle East	70	61
Far East, excl. Japan	64	54
Oceania	57	38

*This corroborates the editor's opinion based on his tour of European countries, including Russia, as reported in his article "What the Russian Pulp and Paper Industry is Doing" in the August 10, 1959 issue of this magazine.

How IP Mill Increased Chip Unloading By 30 Per Cent with Wheel Loader

Use of front end wheel loaders has increased the rate at which saw mill chips are unloaded at the International Paper Co., mill at Spring Hill, La., by 30 per cent according to H. M. Reed, Jr., plant engineer. The saw mill chips are delivered in box cars seven days a week to keep pace with the need for wood. About 250 cords of chips are unloaded daily. On the average, 100 cars are unloaded weekly.

The railroad cars pull up beside an unloading dock equipped with a hopper. The wheel loaders scoop up the chips, turn in extremely confined quarters, and dump their load directly into the hopper. The hopper is directly over a conveyor belt that leads to the wood room.

The fact that the wheel loader's haulage distance is extremely short requires a great deal of reversing. Since the wheel loaders must turn on a dock about 7 feet wide, the machines must have a short turning radius.

"We're using two Model TL-6 TractoLoaders, made by Allis-Chalmers in our unloading operation," Mr. Reed said. "We selected the machines in order to speed up our close-quarter material handling."

The units have a 6½-foot turning radius, a length of only 9 feet 7 inches, and are 4 feet 5 inches wide. Both are equipped with power steering.

When picking up a load, the operator is able to achieve smooth, steady crowding, using only his foot throttle.

There is no clutch pedal. The hydraulic torque converter drive eliminates shifting, engine stalling, and wheel spinning. The bucket, which holds ¾ cubic yard, tips back to 22 degrees at ground level, providing scooping action that tumbles the saw mill chips into the bucket.

The loaders move forward and backward without shifting. The operator selects the working gear he wants, and then simply engages the forward or reverse clutch with a single lever—push for forward, pull for reverse. Reverse is twice as fast as forward to speed delivery of the load.

"Of course, in a seven-day operation, it is critical that machines perform with a minimum of down time. The Model TL6 TractoLoaders feature screen and magnetic filters on the pump suction line to keep the hydraulic system clean under all operating conditions," Mr. Reed reports.

Forward speeds are 0 to 3.9 m.p.h. in first gear, and 0 to 8.0 m.p.h. in second. Reverse speeds are 7.2 in first, and 14.0 in second.

▼ **Wheel loader smoothly crowds pile as bucket tips back 22 degrees to pick up scooping load of chips.**

▲ **Compact loader maneuvering in close quarters dumps load into hopper above conveyor belt. Bucket capacity is ¾ cu. yd.**

When car has been emptied sufficiently, wheel loader ► moves right inside, and unloads chips directly from car to hopper.

Primary Fiberizing of High Yield Pulp Highlight of Alkaline Pulping Conference

More details on fiberizing NSSC pulp between the blow tank and refiners may be found below, together with condensations of other selected papers.

Paul D. Van Derveer,
Associate Editor,
Paper Trade Journal

Important new developments in pulping and recovery methods were featured at TAPPI's 13th Alkaline Pulping Conference. Held at the Hotel Robert Meyer in Jacksonville, Fla., the meeting began on November 4 with opening remarks by J. McK. Limerick (Bathurst Power & Paper Co.), chairman of the alkaline pulping committee and ended on Friday, November 6, with tours of St. Regis Paper Co. and the University of Florida. The program included papers on recovery, causticizing, sulphidity control, pulping and refining on both kraft and semi-chemical pulp. Condensations of selected papers are given below.

Luncheons were held both Wednesday and Thursday, the speakers being Haydon Burns, mayor of Jacksonville, and James Low, National Ass'n. of Manufacturers. Following Thursday's luncheon, P. E. Nethercut, secretary-treasurer of TAPPI, presented Mr. Limerick, the retiring general chairman, with a certificate marking the completion of his two-year term. Hospitality hours were held in the evening by Improved Machinery Co. and Solvay Process Div. of Allied Chemical & Dye Corp.

Program chairmen for this conference were K. D. Running, Halifax Paper Co. and R. E. Collins, Crossett Co. Chairman of the conference arrangements committee was S. P. Kaptain, St. Regis Paper Co. Assistant chairman was E. S. Rice, also of St. Regis.

Primary Defibering of High Yield And Semi-Chemical Pulps

One of the highlights of this conference was a speech by J. F. Keyes of North Carolina Pulp Co. where the initial pulp mill installation of the Impco Solvo Fibrilizer is in operation. Mr. Keyes said that the Fibrilizer installation has resulted in a more uniform pulp to their primary disk refiners, reduced the headache of plugging control valves and stock lines, simplified startup, and has reduced the amount of material returned to the blow tank for nesting purposes. It has also resulted in less maintenance and reduced horsepower. The installation was part of a mutual program with Impco for the investigation and development of the Fibrilizer which utilizes the principle of the Solvo pulper. Invented by Sture Wicksell of Stockholm, the pulper is basically a rotating perforated plate fastened to a highly modified pump impeller rotating in a pump case. When mounted in a tank, the unit can be used to pulp undefibered particles which pass over the perforated plate and try to enter the holes, drawn by the suction induced by pump vanes directly below the plate. Centrifugal action, induced by approximately 450 r.p.m. of the rotor, develops a force to move the particle off the plate and up the sides of the vat, causing the particle to be drawn apart without damage to the fiber. The pump impeller draws the separated fibers through the holes in the plate. The coarser particles cannot pass through and the centrifugal action of the rotating perforated plate opposed by the suction of the pump exerts a fiberizing force on the particles.

Similar to Solvo Pulper

The pump, which is integral with the unit, was said by Mr. Keyes to deliver a normal head at pulping consistency. In the high density Solvo broke pulper design which was shown on the screen, a screw conveyor flight on the rotor shaft was used to aid pulp movement in the vat and assure continuous feed. The Fibrilizer is similiar to the Solvo pulper but does not utilize the screw conveyor.

Mr. Keyes said that the Fibrilizer was installed in parallel with existing equipment on North Carolina's cone bottom blow tank in September 1958. Some difficulties were experienced at first and holes in the perforated plate were enlarged to the present size of $\frac{7}{8}$ x $1\frac{1}{2}$ inches. At the same time, the Fibrilizer plate speed was increased from 450 r.p.m. to 550 r.p.m. Later a baffle was installed as well as a stationary steel blade to wipe the screen plate; also a propeller was installed on the hub of the Fibrilizer in order to give a positive flow of stock to the plate. A

static precipitator. Results paralleled

tonnage test showed that they could produce approximately 400 tons per day of NSSC pulp. Another change was to reduce the speed of the unit from 550 r.p.m. to 480 r.p.m. which reduced the horsepower approximately 30 per cent.

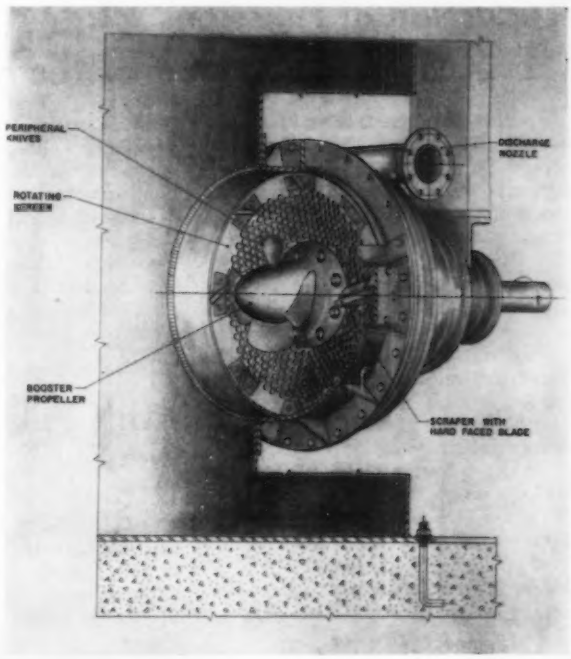
The Impco unit has also been taken off the side of the blow tank and is now ground mounted. The unit has now been in production approximately 10 months in its present design and, according to Mr. Keyes, the quality of the material delivered by the Fibrilizer is such that they are able to maintain more nearly the same setting on primary disk refiners. This means less work is put in for oversize particles, and the refiners can be set at their optimum point. Chips and large fiber bundles are reduced in size in the attrition zone of the Fibrilizer. Individual fibers pass through the holes with no further work being done on them.

On startups continual adjustment of the disk refiners is no longer necessary because the Fibrilizer delivers, in one pass, uniform pulp that will allow the refiners to go on the line immediately, thus saving considerable startup time.

Session on pulping. Front row: C. J. Reis, New York & Pennsylvania; K. D. Running, moderator, Halifax Paper; J. C. McKee, Union Bag-Camp; J. Lancaster, Container Corp. of America. Back row: H. D. Jurgenson, North Carolina Pulp Co.; C. L. Rucker, Container Corp. of America; H. G. Lankenau, Chicago Bridge & Iron.

High Yield Pulping System

Mr. Keyes said that, through continuous modification and improvement, North Carolina has developed a system quite different from the majority of existing neutral-sulphite semi-chemical systems or high yield pulping systems. They use vertical digesters and blow to a conventional blow tank. When operating on NSSC, they cook with about 12 per cent Na_2SO_3 at a 3.7 to 1 liquor to wood ratio for five hours at 60 p.s.i. They have successfully produced pine kraft through this system using a long cook to obtain a permanganate number of approximately 50.



Sketch of Fibrilizer. Special pump impeller is located beneath perforated plate.

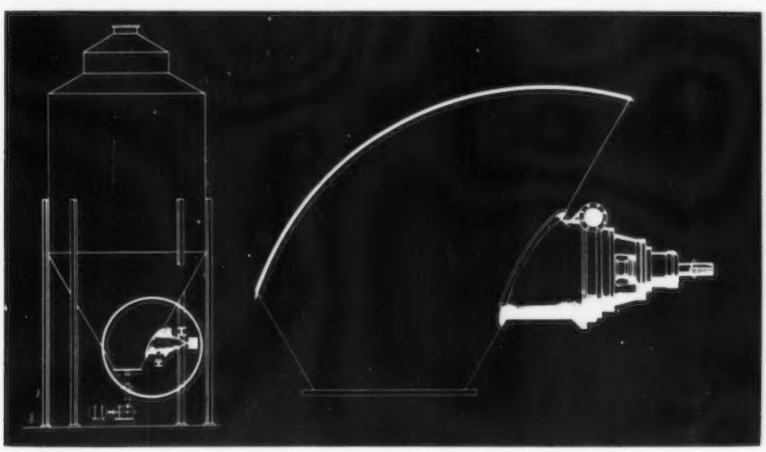


Diagram of cone bottom blow tank with Solvo Fibrilizer in place for primary fiberizing before the refiners.

Direct Reading Pulp Consistency Tester

cess. Scrubbers of various types were

Session on recovery and primary defibering. Front row: David Wetherhorn, moderator, Southern Paperboard Corp.; G. W. Legg, Pulp & Paper Research Institute of Canada. Back row: H. E. Friedrich, Buffalo Forge Co.; R. E. Fones, Jr., Gaylord Container; J. F. Keyes, North Carolina Pulp Co.

Reduction of Emissions From a Recovery Boiler

Speaking on control of flue gas emissions from pulp mill chemical recovery furnaces was H. E. Friedrich who was co-author of a paper along with M. W. First and R. P. Warren, all of the Buffalo Forge Co. Mr. Friedrich said that one of the problems with electrostatic precipitators was that the collection plates often become overloaded, reducing the electrical potential and increasing conveying velocities. The effect is to reduce overall collection efficiency. Another difficulty which is of significance in air pollution is "blow-off" from the collector plates of agglomerated smelt particles known as "snow" which often causes property damage.

Mead Eliminates Snow

He discussed these problems as they affected the Mead Corp. plant at Kingsport, Tenn. They use the soda process for preparing pulp and recovery system includes a plate-type electrostatic precipitator of 90 per cent efficiency.

To completely eliminate the soda ash snow, Mr. Friedrich said they considered the installation of a Buffalo Forge Co. Type TE washer because of its very low draft loss and the ease of solution of soda ash in warm water. A pilot model washer of this type was installed to operate on recovery furnace exhaust gases following the precipitator at Mead's plant and underwent a series of efficiency tests. The pilot studies were successful and a full scale 65,000 c.f.m. capacity unit was installed. Results from this unit agreed closely with those of the pilot study and completely eliminated discharge of "snow" from the stack.

A similar problem at Weyerhaeuser's kraft mill in Everett, Wash., was then discussed by Mr. Friedrich. A small Buffalo Type TE washer was installed there to make pilot scale tests of chemical recovery from flue gases leaving the electrostatic precipitator. Results paralleled the success at Kingsport.

Fibreboard's Installation

Fibreboard Paper Products at San Joaquin, Cal., installed a Type TE washer in its kraft mill based on the success of previous installations, said Mr. Friedrich. This unit was constructed of 316 stainless steel with Monel piping and nozzles and was rated at 160,000 c.f.m. at 270°-290°F. and a gas flow resistance not to exceed 1.25 inches w.g. Dust loadings to the washer normally ranged between 0.05 and 0.15 grains per cubic foot, but could go higher when the precipitators were down. The installation was made to eliminate deposits of soda ash which were creating a nuisance in the vicinity of the plant. According to Mr. Friedrich, operating personnel at Fibreboard stated that the washer met guarantees to remove 88.5 per cent of the dust discharged from the precipitators, and to pass no more than 0.05 grains per cubic foot of moisture in the form of droplets 100 microns and more in size.

Air flow resistance of the TE washer is 0.5 inches W.G. for cocurrent spraying. Counter current spraying raises air flow resistance to 0.75-1.0 inches W.G. at rated capacity.

Kraft Pulping of Small Diameter Slash Pine

Some physical characteristics and some aspects of the pulping behavior of small stems of slash pine (Pinus elliottii) were the subject of a report by J. C. McKee, Union Bag-Camp Paper Corp. He defined small diameter pine as trees having butt diameters too small for the stems to be classed as merchantable pulpwood. Several southern pulp and paper companies have shown interest in utilization of this wood.

The types of small stems covered in this work were thinnings, or young trees growing in dense stands, and whips, or older trees which have failed to reach normal diameter due to suppressed growth. It was found that the stems of 0.9 to 2.4 inches diameter are normally higher in moisture content and lower in density than normal size pulpwood, but whips of 2.5 to 3.5 inches diameter were lower in moisture content, higher in density than average pulpwood. Thinnings of 2.5 to 3.5 inches were close to normal pulpwood. Average bark content over 2.5 inches diameter was 18.3 per cent on green weight basis.

Pulp Yield and Strength

Thinnings pulped to an average total yield very close to that of normal wood, but the high reject percentage resulted in low screened yield. The whips produced a higher total yield and a higher screened yield than normal wood.

In bursting strength and tear strength, the whip pulps were superior and the thinning pulps inferior to normal pulp, but pulps from both types were higher in tensile strength than normal wood pulp. Conclusions were that if small diameter slash pine stems can be economically converted into chips of acceptable size, quality and cleanliness, they can be utilized in the production of acceptable quality unbleached kraft pulp.

Direct Reading Pulp Consistency Tester

An improved method of testing consistency of thick pulps, three per cent or above, to provide a more accurate test and to reduce testing time, was reported by C. L. Rucker, Jr., and J. Lancaster of Container Corp. of America, Fernandina Beach, Fla. It was said that better control of consistency results in more uniform quality of liner board through more uniform screening, refining and basis weight.

The consistency tester was developed by using a variable-speed ELB agitator, manufactured by Chemineer, Inc. The agitator mounts on a thrust ball bearing on a dynamometer stand. The moment arm is attached to a pneumatic, differential pressure transmitter, which transmits the signal to a 3-15 p.s.i. pressure gage which supplies a numerical value proportional to the torque produced.

The consistency was determined from a calibration curve of actual consistency versus torque measurement of agitating pulp. Several variables in the test were found and, it was recommended that the torque be measured after three minutes of stock agitation. Stocks from different levels of refining produced slightly different calibration curves. Calibration curves corresponding to the point of sampling should be used. An increase in stock temperature lowered to torque measurement, and to correct, the curves of different refined stock were calibrated at a stock temperature of 100°F. after agitation. A standard size sample vessel should be used and stock should cover the agitator blades.

Consistencies of pulps between 3.0 and 4.5 per cent can be tested in about three minutes and should be accurate to about 0.1 per cent consistency.

Recovery of Dissolving Tank Soda Losses from the Stack

In a paper on dissolving tank stack soda losses, A. A. Bernhardt and J. S. Buchanan of Nekoosa-Edwards Paper Co. described a knitted-metal mist eliminator installation which recovers nearly all the material previously lost. The Nekoosa kraft mill had started up a 350-ton recovery unit in November 1955 with a smelt shatter system utilizing recirculated green liquor sprayed through nozzles directed at the smelt stream. This shatter system was later abandoned due to trouble with sealing and plugging.

Steam Nozzles Effective

Steam shatter nozzles had also been installed and these proved effective in breaking up the smelt stream. However, when located under the spouts and directed against the back side of the smelt stream, a large quantity of very small particles was produced. These were entrained in the dissolver vent stack gases, and caused property damage which focused attention on the stack as a source of alkali losses. The nozzles were relocated and the problem largely corrected.

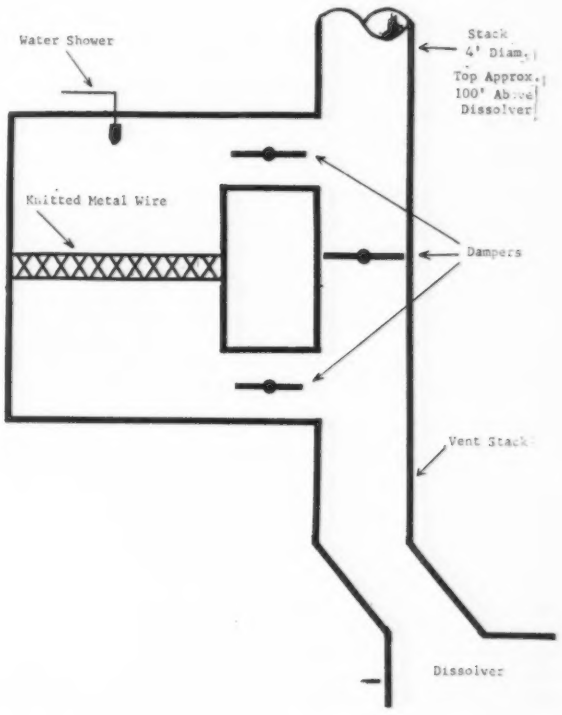
This sequence of events led to a testing program to determine the quantity of alkali in the vent stack stream. These tests disclosed that alkali losses averaged 4,020 lbs. per day as sodium sulphate (or 17.1 lbs. per ton of pulp produced) having a value of $68.90 per day. Various schemes were considered to reduce these losses, but without marked success. Scrubbers of various types were not intalled because: (1) their recovery efficiencies were not as high as desired; (2) water would be added to the alkali system at the expense of lime washing efficiency; (3) return on required investment was not very attractive.

Install Mist Eliminator

The next step was installation of a knitted-metal mist eliminator made by the Metal Textile Corp. As gas and vapor pass through the eliminator, the entrained liquid droplets im pinge on the surface of the wire, then coalesce into larger drops which fall back against the rising gas stream into the dissolving tank. Clean gas passes up through the mesh and out the stack. The 304 stainless steel knitted-metal eliminator was mounted in an old 9½-foot diameter tank which was then attached to the vent stack. Put in service in November 1958 at a cost of $2,593.47, this cost was returned in about six weeks. Salt cake savings were in the order of 16.3 lbs. per ton of pulp, but a loosely fitting damper was rebuilt to a much closer fit and greater savings were realized. Dissolver vent stack losses were down to about 0.5 lbs. of sodium sulphate per ton of pulp.

Scale Build-Up

The mist eliminator was initially washed every four hours by a shower



Knitted metal mist eliminator used to reduce soda losses from stack.

VALUE OF SODIUM LOSSES FROM DISSOLVER STACK

TEST	SODIUM LOSS as Na_2SO_4 Lbs/Ton A.D. Pulp	ECONOMIC VALUE[1] $/day	$/year[2]
Before Mist Eliminator Installation:			
A	17.2	70.00	23,100
B	20.0	81.50	26,900
C	14.0	55.20	18,200
Avg.	17.1	68.90	23,700
After Mist Eliminator Installation (Before Damper Repair):			
D	3.9	18.00	5,940
E	3.6	16.60	5,480
Avg.	3.8	17.30	5,710
After Mist Eliminator Installation (After Damper Repair):			
F	0.7	3.10	1,020
G	0.5	2.20	725
H	0.5	2.30	760
I	0.5	2.30	760
Avg.	0.5	2.50	816

[1] Based on delivered Na_2SO_4 price = $34.50/ton
[2] Based on 330 operating days per year

to prevent alkali build-up, but after several months of operation the eliminator was found to be seriously plugged with deposits which primarily were calcium carbonate. The sections of knitted metal were removed from the tank, immersed in dilute nitric acid and re-installed. Plans are now being laid to prevent gradual build-up of scale.

Nekoosa was said to be well satisfied with the installation because it makes possible economical operation of the recovery plant and lends itself to the possibilities of heat recovery later.

Kraft Liquor Sulphidity Control With Sulphuric Acid

A system at Bowaters Southern Paper Corp., Calhoun, Tenn., whereby sulphuric acid is used as make-up sulphur to permit recovery of spent cold caustic pulping liquors, was described in a paper by J. N. Swartz, R. C. MacDonald and P. C. Hembaugh of Bowaters. They reported that their need had been for a simple system to provide the necessary sulphur to permit burning of spent liquor from a cold caustic operation in the existing recovery furnace. In addition quality control and sulphur efficiency were factors. Stream pollution was a major concern as well as economics.

Cross Recovery with Cold Soda

Sulphidity is one of the variables affecting pulp quality, and the problem of maintaining kraft liquor sulphidity is aggravated in mills which have a diversified pulping program. Neutral sulphite semichemical spent liquors may be recovered by the cross recovery method with kraft liquors, whereby spent hardwood liquors are mixed with kraft liquors and processed by normal kraft recovery equipment. The resulting cooking liquor has improved sulphidity over straight kraft liquor.

New pulping processes for hardwood utilization, such as the cold soda process, show better promise of competing with softwood pulps. Sodium hydroxide, the pulping agent, is well suited to recovery along with kraft liquors, provided sulphidity control is available.

Calculations were shown to indicate the recovery ratios possible with NSSC and cold soda cross recovery systems. Kraft mill make-up at 150 lbs. salt cake per ton kraft pulp will permit cold soda production at 50 per cent of kraft tonnage and NSSC at 25 per cent of kraft tonnage. A simple method for sulphur makeup is however a requisite.

Use of Sulphuric Acid

Investigational work in which sulphuric acid was pumped to the salt cake mix tank indicated that the problem of applying this method of sulphidity control was strictly one of mixing. The probability of salting out of sodium sulphate in the evaporators and cascades predicated that the point of addition of the acid should be as close to the furnace as practicable.

A system was installed consisting of a by-pass line with small acid mix tank between the cascade evaporator flow box and the salt cake mix tank so that the system could be cut into or out of the line without recovery furnace interruption. Black liquor flows from the cascades through the flow box and screen down into the by-pass line, then up through the acid mix tank and overflows into the salt cake mix tank. Non-sulphide bearing spent liquor from the hardwood mill is added to the black liquor

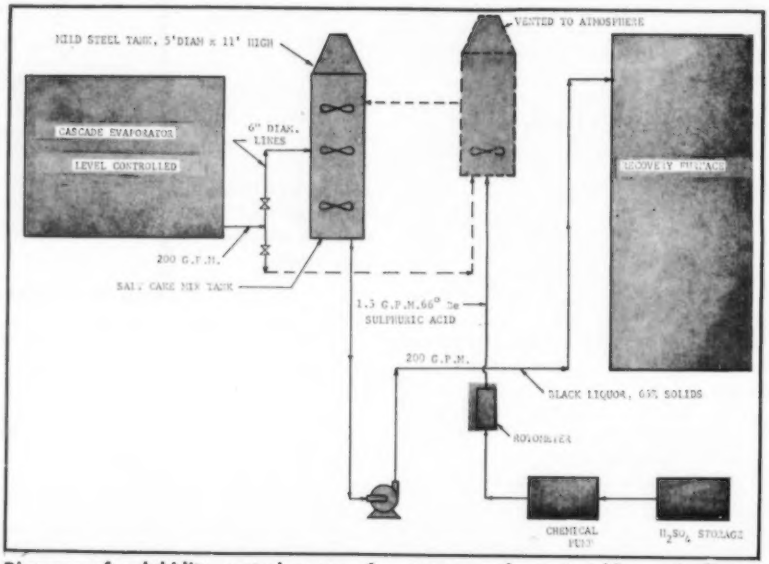


Diagram of sulphidity control system for recovery of spent cold caustic liquor.

at a fairly steady rate (50 g.p.m.) with consequent uniform sulphuric acid demand. However, the acid feed rate is usually adjusted as the salt cake make up rates are changed.

Results

Prior to start-up of the hardwood system a 16-hour trial was made in which caustic soda was added to the system at the multiple effect evaporator and the sulphuric acid added to convert to salt cake. Acid was added at 1.35 g.p.m. and salt cake make up was reduced an equivalent amount. Analysis showed that there was no significant change in sulphidity as tested at the smelt dissolving tank. Later, a further test was run in which acid only was added, and green liquor sulphidity increased to beyond 30 per cent in about eight hours. Furnace feed liquor pH did not fall below 10.2.

The hardwood mill was started early this year with the spent liquor being returned to the kraft mill weak black liquor system. Liquor tests show that sulphuric acid is providing an increase in sulphidity. Without this sulphuric acid system the hardwood mill could not operate, as stream pollution equipment could not handle the additional B.O.D. load.

Semi-chemical session. Front row: S. Meinstein, Witco Chemical Co.; R. E. Collins, moderator, Crossett Co.; J. F. Laundrie, U. S. Forest Products Lab.; W. B. Stengle, Crossett Co. Back row: A. H. Wickett, Weyerhaeuser Co.; G. E. Soyka, George E. Soyka & Associates.

Use of a Surfactant in the Cold Caustic Pulping

The use of surfactants to enhance penetration of cold soda liquor into hardwood was the subject of a study by R. A. Diehm, Western Michigan Univ., H. Larson and S. Meinstein, Witco Chemical Co. By improving dispersion and uniform penetration of the effective liquor to all fibers in a wood chip, actual digestion time as well as liquor concentration might be decreased to do equally efficient job, without unnecessarily fracturing fibers in some portions of the chip where a great differential in rate of liquor penetration might exist.

Choose Cold Caustic Process

The cold caustic process was chosen for the investigation because it is one of the few pulping processes in which a major portion of the spent liquors may be reused directly, and thus most of the surfactant could be recovered and used again without special techniques.

The field of possibly useful surfactants was narrowed to several, of which sodium xylene sulphonate (SXS) made by Witco Chemical Co. and sodium toluene sulphonate showed promise. Preliminary laboratory work indicated that cold soda pulping of aspen wood chips with SXS in the liquor appeared to show greater fiber separation with less loss in strength. More elaborate experiments were then carried out to check these observations, to note any yield increase, to study power requirements, and to determine the optimum concentration of SXS, and caustic.

Conclusions

Conclusions reached were that:

1. The use of SXS with caustic soda gives a softer fiber, and requires less power at the expellers than do chips treated with caustic alone.

2. Bursting strength and folding endurance develop as beating is prolonged, and do not diminish as the freeness drops to 100.

3. Pulps made with SXS and caustic are slightly stronger than those made with caustic alone.

4. Pulps made with SXS and caustic can compete with neutral sulphite pulps on a quality basis.

5. The use of SXS with caustic improves the yield noticeably.

6. Pulps made with SXS and caustic are bleachable.

7. Caustic liquor with SXS can be recycled, and SXS is not consumed in the digestion process.

8. SXS pulps defiber faster and more easily.

9. Somewhat improved strength characteristics, combined with an increased yield would tend to indicate better fiber separation, with less damage to and attrition of fibers, when SXS is used in the caustic liquor.

Effect of pH on Pulp Degradation in Hypochlorite Stages of Kraft Bleaching

Data were presented by M. G. Lyon and A. C. Salisbury of Champion Paper and Fibre Co., Hamilton, Ohio, showing that the effect of pH in the hypochlorite stages of a multistage bleaching system of southern pine kraft pulp is similar but not identical.

Little work has been done to investigate fully the importance of pH to the course of the reaction in each of the hypochlorite stages of a typical multistage kraft bleaching system. Champion noticed that there appeared to be a difference in the way pH influenced the degradation pattern between fairly well purified pulp and the less purified pulp of the earliest hypochlorite stage. Their six-stage bleaching sequence consisted of chlorination, hypochlorite, alkaline extraction, and hypochlorite. Their investigations indicated that pulp in the first hypochlorite stage was subject to increasing degradation with lowered pH down to pH 3 rather than

having greatest degradation at near the neutral point as indicated by published literature. This led to an extensive study of the role of pH including tests of pulp viscosity, brightness, brightness stability, alkali solubility, permanganate number and time for bleach exhaustion.

Investigation and Results

Using southern pine kraft pulp of 32.0 viscosity and 20.0 permanganate number, the effect of carrying out the hypochlorite stages at pH's from 1.5 to 10 was investigated. The bleaches were made at 110°F. and 145°F. The final hypochlorite stage was carried out at two levels of applied available chlorine, 0.3 per cent and 1.0 per cent basis oven dry pulp.

Results of the investigation were:

1. The effect of pH, while similar in the different hypochlorite stages, was not identical.

2. Viscosities in stage two continued to decrease with lower pH's to about pH 3. Viscosities in stages four and six were lowest around pH 6. Temperature did not have much effect on the viscosity-pH relationship.

3. Permanganate number in stage two is minimum around pH 7 while in stage four it decreases with decreasing pH. Temperature has little effect.

4. Brightness appears to be affected more by the amount of available chlorine applied and temperature than by pH.

5. Increased solubility in hot alkali follows reduced viscosity fairly closely when compared in a given stage but does not necessarily correspond in the broader sense.

6. Brightness lost in oven fading increases with decreasing pH in general, but the amount of applied chlorine and bleaching temperature have considerable effect.

P. E. Nethercut, secretary-treasurer of TAPPI, presents J. McK. Limerick certificate as retiring chairman.

Haydon Burns, mayor of Jacksonville, talks with S. P. Kaptain, St. Regis Paper Co., who was in charge of conference arrangements.

Current Trends In Continuous Causticizing Practice

Outlining the progress made during the last 12 years in kraft mill causticizing was the topic of a paper by W. Christiani, D. C. Gillespie and R. P. Logan, all of Dorr-Oliver, Inc. First, the main functions of a recausticizing plant were set forth as follows:

1. To convert as much as possible of the recovered sodium carbonate to sodium hydroxide.

2. To produce a suitably clarified white liquor of the desired concentration.

3. To separate, wash and dewater the lime mud to prepare it for calcination.

4. To clarify the green liquor prior to recausticizing and to wash and thicken the resulting dregs.

Important Changes

A typical modern flow sheet designed to produce a highly polished white cooking liquor of uniform quality was then shown and the unit operations involved were discussed. Several important changes have occurred in the last 12 years. Concerning raw green liquor feed, increased efficiency of modern recovery furnaces has meant lower dregs loadings in the clarifier. Newer plants now find the insoluble solids loading in the 6-12 pounds per ton of pulp range rather than the 10-15 average of previous years.

More efficient units with deep feedwells have made possible a three to four fold increase in design overflow rates, and at the same time lowered the initial equipment investment through reduction in the number of compartments. Further increase in clarification efficiency has been made through the introduction of a novel feedwell which utilizes opposing feed streams to convert the inlet velocity head to the useful work of promoting flocculation of the fine solids.

Soda Recovery

In dregs washing, increased soda recovery from green liquor dregs resulted when dregs washer specifications were revised from tray to unit compartment design in 1954. This has eliminated overflow sleeve adjustments and minimized line scaling problems. Increasing the washing efficiency of the single stage unit is the dregs mixer ahead of the dregs washer. To assist further in soda recovery, several recent mills are designed to send up to 30 per cent of the available wash water to the dregs washer before using it to wash lime mud. A timer actuated diaphragm pump has been used successfully to approach continuous dregs washing. Small basket-type screens seem to have eliminated occasional pumping problems caused by tramp oversize material in the raw green liquor.

Hot Line Handling

A major change has been in the area of hot lime handling. Several mills are using various arrangements of a two-stage slaking system which utilizes a large primary slaker between the kiln and the slaker classifier. This system eliminates the need for a green liquor heater, hot lime elevator, reburned lime bin, and chain feeder, substituting for them an inclined apron or pan conveyor, the primary slaker, and a gravimetric feeder. The advantages are leveling out of kiln surges, utilizing the sensible heat in the hot lime and reducing the equipment and maintenance previously required to handle the hot lime.

New Tray Design for Clarifier

A new tray design clarifier which has been proven in the sugar industry was then shown. It requires no feedbox since it utilizes a feedwell with two opposing feed streams, and

the feed is automatically divided equally between the compartments by means of vertical concentric-type feed distributors. A labyrinth seal between compartments permits separate mud withdrawal from each compartment, providing positive mud removal control and eliminating any possibility of re-dilution of thickened muds. Clarified liquor from the lower compartments flows through internal bustle pipes to a single overflow box where it is joined by the upper compartment launder effluent.

Detention efficiencies are comparable to those of unit type clarifiers and so the modern tray type machine can be designed with confidence on the basis of 10 to 12 sq. ft. of thickening area per ton per day of lime mud at 40 per cent solids underflow concentration. This reduction of 25 to 37 per cent in area requirement results in lower capital costs without sacrificing the space saving advantages of the tray design.

White Liquor Polishing

The trend toward extreme brightness in pulps was next discussed in relation to the increasing need for very clear white liquor. For high brightness pulps, an exceptionally clear white liquor can be produced by removing the last traces of suspended contaminating solids in a polishing filter.

A white liquor polishing station normally consists of a battery of three filters, each unit containing a 53-inch deep bed of anthracite coal. The very fine suspended solids are deposited in the upper portion of the bed, producing a sparkling clear liquor. The polishing station also serves as a safeguard against cloudy white liquor caused by slow settling lime mud, and prevents off-color pulp by filtering out metallic slimes.

Lime Mud Washing

The trend in lime mud washing was said to be continuing in the direction of two stages of mud washing in a four compartment tray thickener. Proper washing results in lime mud containing less than one per cent Na_2O based on the dry solids.

The trend in kiln design was said to be in the direction of higher length to diameter ratios, with present ratios of 30 and 35 to 1 (in 1948 it was 18 to 1). Also, there is a trend toward one large unit rather than several smaller units. Greater fuel economy is evident with present day fuel requirements being 7-8 million Btu. per ton of lime. There is also emphasis on more efficient dust collection. A number of mills are now using a hot lime crusher following the kiln.

In pumping, several mills have recently pioneered the use of air-actuated type ODS diaphragm-type pumps on both lime mud slurries and green liquor dregs. This pump may provide a low cost answer to metering and transferring of these slurries against high discharge heads in smaller mills.

Visitors from foreign countries. Front row: J. W. Wilson, Columbia Cellulose Co. (Canada); D. H. Paavila, KVP Co. (Canada); J. McK. Limerick, Bathurst Power & Paper Co. (Canada); George Sivola, Combustion Engineering (Finland); Dr. Junzo Nakano, Univ. of Tokyo (Japan). Back row: Ingemar Bystedt, AB Defibrator (Sweden); G. M. Legg, Standard Chemical (Canada); R. W. Emery, consulting engineer (Canada); Niilo Hakkarainen, Kemi Oy (Finland); C. M. Saul, Associated Pulp & Paper Mills (Australia).

Kraft Liquor Evaporator Operation With Mesh Pad Type Separators

The installation of wire mesh type de-misters at North Carolina Pulp Co. are unique in that they were the first to include all bodies of a multiple effect evaporator system concentrating black liquor from southern wood pulping operations. This was the subject of a paper by H. D. Jurgensen, North Carolina Pulp Co., H. E. Jacoby and H. G. Lankenau, Chicago Bridge and Iron Co.

Install Mesh De-Misters

York mesh de-misters were installed in all six effects of North Carolina's No. 4 evaporator set in July 1958. Soda loss tests showed a distinct improvement in the reduction of soda losses to the sewer. An unforeseen result was the longer operating time between required boil-outs and the resultant increase in capacity attained by the longer operating period. For example, the unit was operated continuously from September 13 to December 19 without a boil-out or shutdown. Capacity was maintained during this period with only a 2° Baume drop in liquor concentration.

Operation proved that mesh de-misters were satisfactory for evaporator service. Previous tests on the No. 3 evaporators had indicated a loss of approximately 16.5 per cent of the available temperature difference across external centrifugal type separators, and it was decided to replace these separators with wire mesh de-misters so as to reduce these pressure drop losses and thus increase overall capacity.

Installation of mesh pads in No. 3 was made two at a time, with tests being run after each installation. Results compared favorably with those on No. 4.

All four sets of evaporators discharge condensate into a common hotwell. Soda losses in the hotwell, following installation of mesh pads in No. 3, were reduced from an average of 5 p.p.m. to 2 p.p.m. At the same time pH increased slightly, indicating a reduction in the quantity of acidic distillation products.

Summarizing

Wire mesh de-misters can be satisfactorily used in all effects of a mul-

tiple effect evaporator concentrating black liquor from Southern pulping operations with a minimum of maintenance. Wire mesh de-misters offer a means of minimizing repairs or maintenance cost especially when internal wrap-around separators are to be repaired. In addition mesh de-misters reduce soda losses and pressure losses across the evaporator systems as well as increased capacity due to longer runs between boilouts.

Refining and Refining Systems for NSSC Hardwood Pulps

Refining of NSSC hardwood pulps was the topic of a paper by G. E. Soyka of George E. Soyka & Associates.

He discussed the growing use of short-fibered NSSC and other hardwood pulps and the need for a critical evaluation of refining methods and systems in order to obtain maximum strength characteristics from these pulps. Depending on the grades manufactured, often long-fibered chemical pulps are added to the furnish in order to obtain certain strength values in the sheet, and it is our endeavor to keep this addition of more expensive pulps at the lowest possible level.

He said that in selecting a pulp for use in the manufacture of a specific paper or board, usually the standard Valley beater test curve is considered an accepted indication of strength capability. However, the limitations of this beater test are manifold, and in some cases the tests are misleading. It has been found that on NSSC pulps the beater test is inaccurate in regard to tear resistance, as it has been established that these pulps yield ultimately better tear strength when properly refined than can ever be anticipated from the beater evaluation.

Limited studies were performed on NSSC hardwood pulp and they show that it is possible to refine this pulp to higher strength levels at higher freeness than the standard Valley beater test indicates, as well as maintaining optimum fiber length. It shows also that further work might develop commercial methods of refining to approach the strength of long fibered pulps. The fact that NSSC hardwood pulp can be developed in a way to have at the same freeness level optimum burst, tear and tensile makes it attractive to design a stock preparation system which will allow minimum strength deterioration through necessary control refining. A refining system of this type might give economic advantages, by possible reduction in long fiber furnish addition or might promote the use of less expensive pulps, as well as promote the use of short fibered pulps in grades not yet utilizing them.

Oxidation of Kraft Black Liquor With Pure Oxygen

In discussing oxidation of kraft black liquor, R. E. Fones and J. E. Sapp of the Gaylord Container Division of Crown Zellerbach cited its value in reducing kraft mill odors and corrosion in the evaporators, as well as minimizing the loss of sulphur compounds in the recovery process. They mentioned that attempts to accomplish oxidation with air has met with little success on southern kraft liquor because of the marked foaming tendency.

Due to the present relatively low price of tonnage oxygen it was thought desirable to investigate its use for oxidizing black liquor, and in this way, eliminate the foaming problem since the oxygen would be consumed and there would be no inert nitrogen present to support a stable foam. The cost of the pure oxygen would have to be offset by savings resulting from decreased addition of sulphur.

Possible Advantages

Addition of oxygen to the digester at the end of a normal kraft cook seemed to offer the following advantages: (1) Oxidation of liquor in the digester would minimize sulphur losses during the blow; (2) the high temperature would greatly increase the rate of reaction; (3) there might be an improvement in pulp color; (4) there would be no large expenditure for oxidation equipment. Possible disadvantages were: (1) the consumption of oxygen might be high due to the high sulphide concentration in the digester; (2) the digester corrosion rate would probably increase; (3) pulp strength might be adversely affected.

Experimental work was instituted to test the feasibility of oxidizing block liquor with pure oxygen either after separation from the pulp or just prior to blowing at the end of a normal kraft cook. The work was carried out in a laboratory digester.

Add Oxygen to Cook

Two normal kraft cooks were made under the same conditions except that oxygen was injected before the end of one cook. One cook was the control while the other had oxygen added 15 minutes before the end of the cook. The latter produced a pulp with higher lignin content and permanganate number and had a lower brightness.

Beating curves were obtained for each of the cooked pulps and, although the pulp to which oxygen had been added was the "harder" pulp, it was easier beating than the normal kraft pulp. An evaluation of strength properties showed that the two pulps are about equal in breaking length and tear when compared at equal freeness. The mullen on the oxidized pulp was lower than on the unoxidized pulp.

Conclusion

Oxidation of black liquor at the end of a normal kraft cook with pure oxygen is too costly at today's oxygen prices. In addition, the pulp strength and color are adversely affected by oxidation in the presence of black liquor. The cost of oxidation of black liquor taken from the digester was found to be high, partly due to the high content of sodium sulphide in the digester.

Economic justification for using pure oxygen would be simpler for the larger mills since the price of oxygen decreases with increasing demand. Southern mills faced with problems of odor abatement, high evaporator corrosion rate or high lime costs would have added justification for oxidation of black liquor with pure oxygen.

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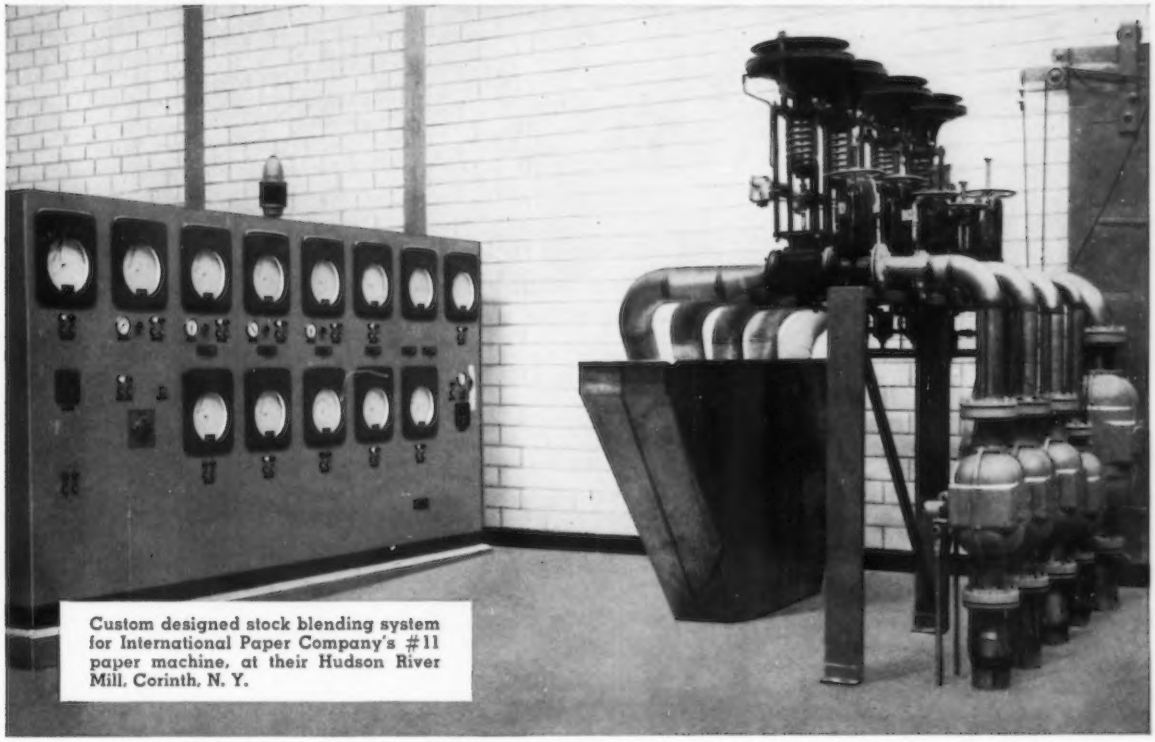

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G.I.A. Elects Officers, Plans Long-Range Merchandising Program

Election of new officers for 1960 and approval of plans for an intensive, long-range industry merchandising program highlighted events of the Gummed Industries Ass'n., Inc., annual meeting held at White Sulphur Springs, W. Va., late last month.

The association consists of the nation's leading manufacturers of gummed sealing and gummed reinforced tapes, gummed flat paper, and gummed tape for corrugated box joints. Twenty-five companies are members. Association headquarters are at 11 West 42nd St., New York City.

Named president for 1960 is Stuart E. Thompson, vice president of the Central Paper Co. of Menasha, Wis. Saul Warshaw, president of the Atlantic Gummed Paper Corp., Brooklyn, N. Y., was elected vice president.

New directors are: R. T. Meyer, who has been G.I.A. president for the past two years and is president of Tape, Inc., Green Bay, Wis.; E. W. Acton, vice president, Thomas Stationery Manufacturing Co., Springfield, Ohio; and David Mazer, sales executive, Hudson and Pulp Paper Corp., New York, N. Y. Directors who were re-elected are:

W. G. Bretson, general manager, Mid States Gummed Paper Division, Minnesota Mining and Manufacturing Co., Chicago, Ill.; Stanley Greenblath, secretary-treasurer, Superior Tape Corp., South Hackensack, N. J.; A. J. Thiel, president, Ludlow Papers Inc., Needham Heights, Mass.; and E. F. Herrlinger II, vice president, Gummed Products Co., a division of St. Regis Paper Co., Troy, Ohio.

P. O. Deitsch

Philip O. Deitsch was re-elected secretary, treasurer and managing director of the association. He has been managing director for 22 years.

G.I.A. member firms also voted at the meeting to undertake an intensive industry merchandising program effective January 1, 1960. Initial emphasis will be placed on market research and public relations activities. The association has retained Klau-Van Pietersom-Dunlap, Inc., Milwaukee, Wis., advertising and public relations agency, to implement the programs.

The association scheduled its 1960 meeting for next spring in Miami, Fla.

Delavan Retires from Presidency of Mead Div.

William H. Delavan has announced that he is retiring as president of the Delavan Division of Mead Containers, Inc., subsidiary of The Mead Corp.

Mr. Delavan said his retirement from active management of the Syracuse, N. Y., corrugated container plant would allow him to devote more of his time to other civic and business interests, including the expansion of Syracuse Steel Buildings Co., Inc., which he recently acquired from the estate of the late William F. Clark.

W. J. Cassady, Jr., vice president, The Mead Corp., said that while Mr. Delavan's retirement would be a loss to the corporation, Mead would continue to profit by Mr. Delavan's decision to serve as a consultant to the division.

Mr. Delavan has played a prominent role in the development of Delavans, Inc., since it was jointly founded in 1933 by his father, B. H. Delavan, his brother, Nathan H. Delavan, and himself.

Hall Names Veitch Hanson Gen. Manager

Stuart Hall Co., Inc., announces the appointment of David S. Veitch, Jr., as general manager of its envelope manufacturing division, the Hanson Paper and Envelope Co. In his new position Mr. Veitch will be responsible for over-all supervision and coordination of sales, administrative and production activities.

Ralph McDonald was named production manager, and Eugene O. Pummill was appointed office manager.

Permacel Offers Paper Tapes Brochure

Permacel, New Brunswick, N. J., manufacturer of pressure-sensitive tapes and adhesives, has prepared a comprehensive brochure on its complete line of pressure-sensitive paper tapes. The brochure details the basic construction and physical properties of the tapes. In addition, there is a listing of paper tape applications such as masking, packaging, sealing, protecting, holding, reinforcing and splicing which point out specific uses

in various industries for these tapes.

Highlighted in the brochure are three Permacel All Purpose Paper Tapes, Permacel 703 Crepe, Permacel 718 Flexible Flatback and Permacel 72 Flatback. These three tapes feature a high tack, odor free, stain resistant adhesive. The backings are specially treated to resist effects of solvents and moisture.

C. N. McElmon

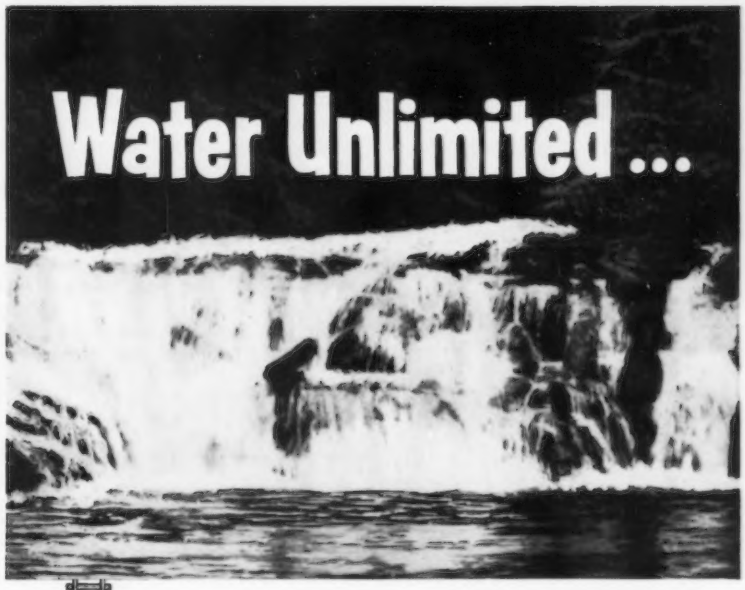
Arkell & Smiths Names McElmon to New Post

The appointment of Charles N. McElmon as manager of distributor sales has been announced by Arkell and Smiths, Hudson Falls, N. Y., whose slogan is "The Oldest Name in Paper Bags." Mr. McElmon has been sales promotion and advertising manager.

Mr. McElmon will devote his time to stimulating distributor sales outlets to know more completely the wide range of paper bags produced by Arkell and Smiths. With Arkell and Smiths since 1952, Mr. McElmon has occupied various positions of responsibility with the company, both in the plant and the sales department.

W.P.M.A. Group to Hold Seminar Oct. 29-30

The Factory Managers' Group of the Waterproof Paper Manufacturers Ass'n., Inc., held its Tenth Factory Managers' Seminar at the Hotel Delmonico, New York City, on October 29 and 30. Eighteen factory representatives from 12 manufacturers of waterproof papers attended and took part in the four major discussions. These included on the first day "Clupak Lamination and Application" led by Peter H. Walmsley of West Virginia Pulp and Paper Co. and "Palletizing for Shipment" led by Martin Stritoff, Jr., of The Cromwell Paper Co. On the second day J. A. Horne of International Paper Co. discussed "Waste Control and



for your new PAPER PLANT in the Southeast Coastal 6!

There's plenty of water for *your* paper plant in the Southeast Coastal 6 — Virginia, North Carolina, South Carolina, Georgia, Florida, and Alabama. And equally important, countless square miles of pine forests to supply you with pulp wood *where* you need it.

Your market is here, too. A vast market of business, industrial, and individual consumers. And it's growing all the time.

Industrial development specialists at Atlantic Coast Line already know the general requirements for profitable paper plant site location. Give them a try on your specific needs. Literally hundreds of thousands of acres of choice spots are now available.

All inquiries handled in strict confidence. Write, wire, or call today: R. P. Jobb, Assistant Vice-President, Department G-119, Atlantic Coast Line Railroad, Wilmington, N. C.

ATLANTIC COAST LINE RAILROAD

Disposal" and Russell J. White of Chase Bag Co. discussed "Developing First Line Supervision."

The Eleventh Seminar is tentatively scheduled to be held in Richmond, Va., in the latter part of March.

United Wallpaper Changes Name

United Wallpaper, Inc., is changing its name to DeSoto Chemical Coatings, Inc., to identify the full scope of the company's business.

The name change was approved by stockholders at their annual meeting yesterday.

S. U. Greenberg, president, said that while the company is the nation's largest wallpaper manufacturer, its sales of paints, resins, varnish and chemicals account for the greater part of the company's volume.

Printer-Slotter Ordered For New Hawaiian Plant

Fibreboard Paper Products Corp. has awarded the Metal Products Division of Koppers Co., Inc., a contract to furnish a Hooper printer-slotter for its new plant currently being built in Hawaii.

The plant will produce shipping containers for both fresh and canned fruits.

The printer-slotter will be 50-inches by 103-inches and will be capable of running 200 sheets per minute. Delivery of the machine will be made about December 1 and it is anticipated that the new Hawaiian plant will be in operation around the first of next year.

St. Regis Announces Plans For Bag Companies

St. Regis Paper Co. announces Lone Star Bag and Bagging Co. of Houston, Tex., and Wagner Bag Co. of Salt Lake City, Utah, which it acquired recently, will continue operations as subsidiaries of St. Regis. These subsidiaries will result in the expansion of the product lines of St. Regis' Bag Division and provide it with a full line of flexible packaging materials for all types of bags and sacks.

In addition to multiwall paper bags, St. Regis will now produce and sell a full line of textile bags, including burlap, cotton, paper mesh, and paper-textile-film laminates. Also, St. Regis will distribute all types of film plastic bags.

As subsidiaries of St. Regis, both Lone Star Bag and Wagner Bag will continue with their present management. Wagner Bag is completing a new plant to house both textile and multiwall operations, as well as its offices. Multiwall production will cover the full line of sewn bags and SOS pasted baler bags.

The St. Regis multiwall bag plant at Kansas City, Mo., has been redesignated as the Mid-America Bag Division.

In addition to multiwall bags, this will include the production and sale of textile bags. Operations at this loaction will be under Frank W. Myers, Jr., general manager.

Herbert Levy, formerly executive vice president of Lone Star Bag, has been appointed director of central operations to coordinate and guide the overall sales and production of Lone Star Bag, Wagner Bag, and Mid-America Bag. In this capacity, he will work directly with Bernard W. Recknagel, vice president in charge of the St. Regis Bag Division. Mr. Levy will make his headquarters in Salt Lake City.

Figures of the Week

PAPER PRODUCTION RATIO REPORT—American Paper & Pulp Assn. Figures

(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

	Oct. 3	Oct. 10	Oct. 17	Oct. 24	Oct. 31
1959	97.2	98.2r	96.8r	96.1r	95.7
	Oct. 4	Oct. 11	Oct. 18	Oct. 25	Nov. 1
1958	90.2	91.6	92.1	92.3	91.7

r Revised.

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1959	87.8	90.5	93.2	94.4	95.3	95.6‡	84.6‡	96.0‡	94.7‡	96.8‡	—	—	—
1958	86.9	89.5	89.5	88.4	87.2	87.2	75.3	89.6	86.5	91.6	90.4	83.1	87.1

‡ Preliminary.

COMPARATIVE YEARLY SUMMARIES

	1952	1953	1954	1955	1956	1957	1958	1959
Year to Date	90.5	93.4	91.8	95.0	98.5	91.2	86.5	92.0
Year Average	88.6	92.3	91.6	94.0	97.9	90.9	87.1	—

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available.

PAPERBOARD OPERATING RATIOS†—National Paperboard Assn. Figures

COMPARATIVE WEEKLY SUMMARIES

	Oct. 3	Oct. 10	Oct. 17	Oct. 24	Oct. 31
1959	97	98	98	94	96
	Oct. 4	Oct. 11	Oct. 18	Oct. 25	Nov. 1
1958	95	95	95	94	95

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1959	89	94	95	94	96	96	83	97	92	97	—	—	—
1958	84	86	87	84	85	86	76	93	90	95	93	77	86

† *Per cents of operation based on "inch-hours" reported on a 6-day basis to the National Paperboard Association.*

SUMMARY OF PAPERBOARD STATISTICS—National Paperboard Assn. Figures

ITEM	THIS WEEK ENDING Oct. 31, 1959	LAST WEEK ENDING Oct. 24, 1959	CUMULATIVE TO DATE Jan. 1 to Oct. 31, 1959 incl.
% Activity	96%	94%	93%
TOTAL	332,303	317,823	13,359,567
Liner	120,562	113,525	4,651,835
Corrugating Material	51,642	50,434	2,034,346
Chip & Filler Board	4,882	4,052	215,738
Total Containerboard	177,086	168,011	6,901,919
Folding	57,549	55,299	2,389,234
Set-Up	14,411	11,978	512,344
Special Food Board	28,478	30,970	1,202,450
Other	54,779	51,565	2,353,620
Total Boxboard	155,217	149,812	6,457,648
Total Orders			
Received	328,047	291,955	
Unfilled End of Week	483,208	487,298	

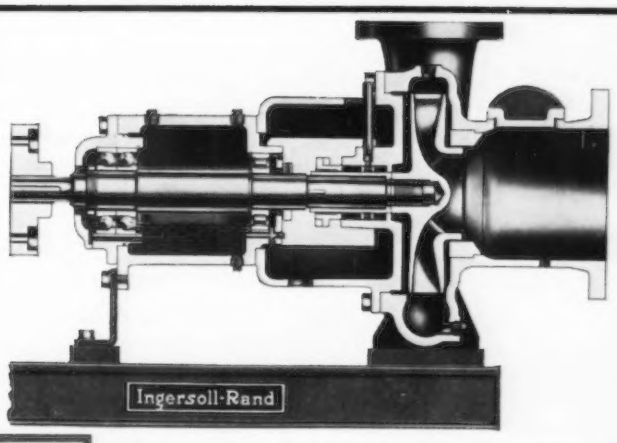
entirely different

This is the only centrifugal pump that can handle 10% stock concentrations

Yes, the patented, diverging impeller in Ingersoll-Rand's Class EL, EM, and EH stock pumps will handle stock at consistencies as high as 10%. The simple diverging impeller design, with few blades and properly proportioned casing, gives these pumps their almost unbelievable operating characteristics.

Any stock—treated, sized or foamy—containing air or gas can be pumped without losing prime or vapor binding. That's because the entrained air or gas enters the vacuum space between the blades and passes through the pump, leaving it unbound and unclogged. These pumps can also be furnished with a conventional impeller for handling lower consistency stock and various industrial liquids.

Ingersoll-Rand Class EL, EM, and EH stock pumps are available in capacities to 7000 gpm and heads to 225 ft. Contact your nearest I-R representative for complete information or write for Bulletin 7296.



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Ingersoll-Rand

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CONDENSERS • PUMPS • GAS AND DIESEL ENGINES • TURBO-BLOWERS • ROCK DRILLS • COMPRESSORS • AIR AND ELECTRIC TOOLS

PERFORMANCE

If your felt hasn't got it here

(you know the rest!)

Every ALBANY FELT

has it!

Performanse means many things . . . and profit depends on it! All the requirements for good felt operation are carefully manufactured into every ALBANY FELT: uniformity, strength, porosity, the qualities for finish, and often the chemical treatments which can contribute to strength, finish and speed.

Each Albany Felt is tailor-made to the exact requirements of your machine. That's why you can be sure that profitable trouble-free performance will result.

Albany Felts are noted for performance, and *nearly every paper and paperboard maker consults Albany* on how their felts should be designed. This step means savings and more saleable tons per day.

Talk over felt performance and mill profits with your Albany Felt Sales Engineer. *It will pay off for you.*

Engineering Service
Laboratory Service
Research Service

Available to You Without Cost!

ALBANY FELT COMPANY
ALBANY, N. Y.

The World's Largest Manufacturer of Paper Machine Felts

Felt Facts

Yesterday's Research is Paying off in Production Records, Today

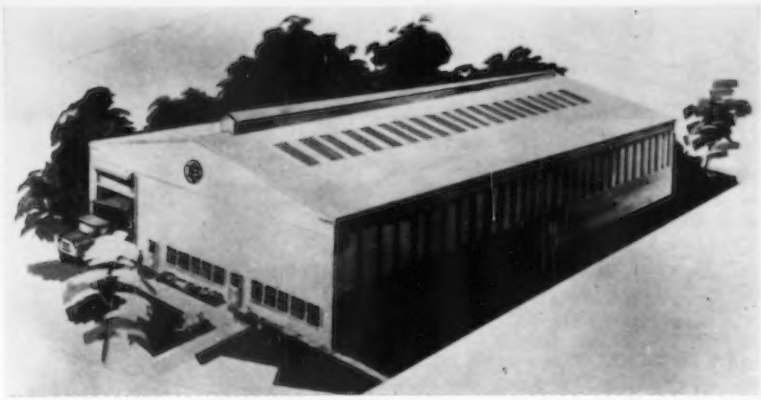
In many high-grade paperboard mills, FINISH is a major objective. Finish . . . to meet the exacting requirements of today's modern packaging industry, must be satin-smooth. Super-smooth finishes require the right felt, which means the right design, correct blending of wools and synthetics, and close manufacturing tolerances.

The Albany Felt research of "yesterday" has resulted in superior felts which have these special features for better finish, together with trouble-free operation that assures maximum drainage and production. For example, the exclusive Albany J-3 Chemical Treatment, which resulted from research, gives the felt a softness and openness which helps toward fine finish and longer felt life. So you can see that our Research is not an "ivory tower" proposition — to you it means better finish, maximum daily production, less down time — in other words, improved felt performance.

J-3

TALK IT OVER WITH YOUR ALBANY FELT SALES ENGINEER

PJT NEWS OF SUPPLIERS



Black-Clawson Co. has begun construction in Middletown, Ohio, of a new research laboratory equipped to investigate every aspect of paper stock preparation and other papermaking operations. A specially designed building on the plant site of Black-Clawson's Shartle division will house the pilot plant stock preparation system, the wet testing laboratory, and the dry testing laboratory now located on the Dilts Division property in Fulton, N. Y. Space is provided for expansion for these facilities and extension of them into related pulping and papermaking operations.

The laboratory will operate under the general direction of Joe Baxter Jr., director of research and development for Black-Clawson. Howard P. Espenmiller, head of laboratories, will manage the activity of the laboratory, assisted by John Litwak and Henry George and additional personnel now being recruited.

In general, the equipment will be of pilot plant scale and adaptable to the widest range of testing work. It is planned that the laboratory be expanded so that ultimately every step of the papermaking process can be duplicated on a pilot scale.

In this first phase, the building will consist of an all steel structure of 144,000 cubic feet. Constructon will be completed and the building fully manned and equipped by February 1960.

The Black-Clawson Co. will continue to operate two other research and development laboratories: the pilot Pandia continuous pulp mill at Berlin, N. H., and the complete paper coating pilot plant at the Dilts division in Fulton, N. Y.

Wyandotte Chemicals Corp., has appointed Carl Smith assistant general manager of its Michigan Alkali Division.

Mr. Smith, who joined Wyandotte early in 1958 as executive assistant to Bert Cremers, a vice president of Wyandotte and general manager of the division, will coordinate the division's sales distribution and marketing research activities with those of research, product development and manufacturing.

A native of New York, Mr. Smith is former vice president and general manager of Huron Milling Co. of Harbor Beach, Mich.

Allis-Chalmers Manufacturing Co. announces the following new appointments for the Pacific Region of A-C Industries Group: J. A. Longley, regional representative for transmission and distribution equipment; E. T. Meyers, manager, San Francisco district, and G. K. Lewis, manager, ortland district.

Mr. Longley has been with Allis-Chalmers San Francisco district since 1946 and manager for the last nine years. He is a graduate of Cornell University. He will continue to headquarter in San Francisco in his new post.

Mr. Meyers had been manager of

The DRAPER Felt
DRAPER BROTHERS COMPANY
CANTON, MASS.

the Portland district since early in 1959. He was a sales representative in the Los Angeles district from 1952 to 1957 when he was transferred to Portland. He is an electrical engineering graduate of Oregon State College.

Mr. Lewis had been a sales representative in the San Francisco district since 1948 and manager of utility sales there since 1956. He is a graduate engineer of the University of California.

Buffalo Forge Co. has elected George P. Schivley, director of manufacturing, to the board of directors. Appointment of Milford E. Reiner as treasurer was also announced.

Mr. Schivley joined the company as general superintendent in 1940, became plant manager in 1951 and assumed his present position in 1955.

A 1927 M. E. gradaute of Drexel institute, Mr. Schivley also attended Case University and was previously employed by DeLaval Steam Turbine Co. as assistant works manager.

An accountant with Ernst and Ernst for 16 years, where he supervised the handling of the Buffalo Forge Company account, Mr. Reiner joined the company as assistant controller in 1941 and was promoted to Controller in 1955.

G. P. Schivley

M. E. Reiner

F. C. Huyck & Sons announce that Frederic A. Soderberg, Vice President the company, has been appointed general manager of the Huyck Felt Co. Division. Mr. Soderberg has long been associated with leading paper and chemical concerns. Prior to his new position, he served as vice-president—marketing.

F. A. Soderberg

J. E. Sullivan

He is vice president of the University of Maine Pulp and Paper Foundation, a past chairman of the Industrial Affiliates Committee of PIMA past president of the Commercial Chemical Development Assn., and past chairman of the Marketing and Economics Division of the American Chemical Society. Born in Lowell, Mass., Mr. Soderberg attended public schools in South Carolina and Bangor, Me. He is a graduate of the University of Maine, having received a degree of professional chemical engineer.

He started his career at the Rumford, Me., plant of the International Paper Co., working as a broke handler, beater engineer and development engineer. He was subsequently employed by the General Dyestuff Corp., before joining F. C. Huyck & Sons.

As general manager, Mr. Soderberg succeeds Roderick T. Clarke, vice president and secretary of F. C. Huyck & Sons, who has been reassigned to duties on the company's corporate staff.

Central Soya, Co.'s Chemurgy Division, Chicago, has appointed James E. Sullivan to its Special Soya Products Chemurgy Sales organization.

In his new position, Mr. Sullivan will work on technical sales and service of the company's line of industrial proteins principally in the South and Middle West. He has had a broad experience in the paper industry in research and development, quality control and technical service to both plants and customers.

Mr. Sullivan is a member of the Technical Association of the Pulp and Paper Industry and he is a graduate of Holy Cross College, Worcester, Mass., where he majored in chemistry.

A. E. Staley Manufacturing Co., corn and soybean processors of Decatur, Ill., announces appointment of William J. Shaughnessy as a paper technical representative in the New York state territory.

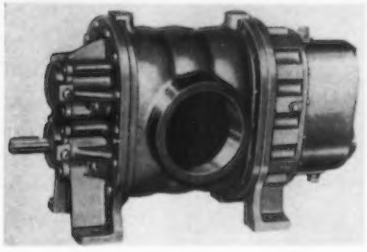
Mr. Shaughnessy, who lives in Albany, N. Y., is a 1954 graduate of New York State College, with a bachelor of science degree in pulp and papr technology. He has been with the Albany Felt Co., as a technical service representative, for the past five years.

CHAS. T. MAIN, INC.
ENGINEERS
PROCESS STUDIES, DESIGN, SPECIFICATIONS, CONSTRUCTION SUPERVISION
PULP AND PAPER MILLS
STEAM, HYDRAULIC AND ELECTRICAL ENGINEERING
REPORTS, CONSULTATION, VALUATIONS
●
BOSTON, MASSACHUSETTS
CHARLOTTE, NORTH CAROLINA

PJT NEW EQUIPMENT & SUPPLIES

Small Vacuum Blowers Introduced

Ten sizes of small-volume vacuum blowers comprise a line being offered by Roots-Connersville, a Division of



Dresser Industries, Inc. Designed for capacities from 30 to 1,000 c.f.m. and vacuum to 20 inches Hg. in single stage application, these units may be compounded for vacuum service over 20 inches Hg.

Major features of the design as listed by the manufacturer include elimination of internal valves, absence of contact between moving parts, virtual freedom from maintenance, maximum efficiency of rotor design and operating speeds, and minimum sealing - water requirements.

At reduced vacuums, these units may be operated without sealing water depending upon the specific application.

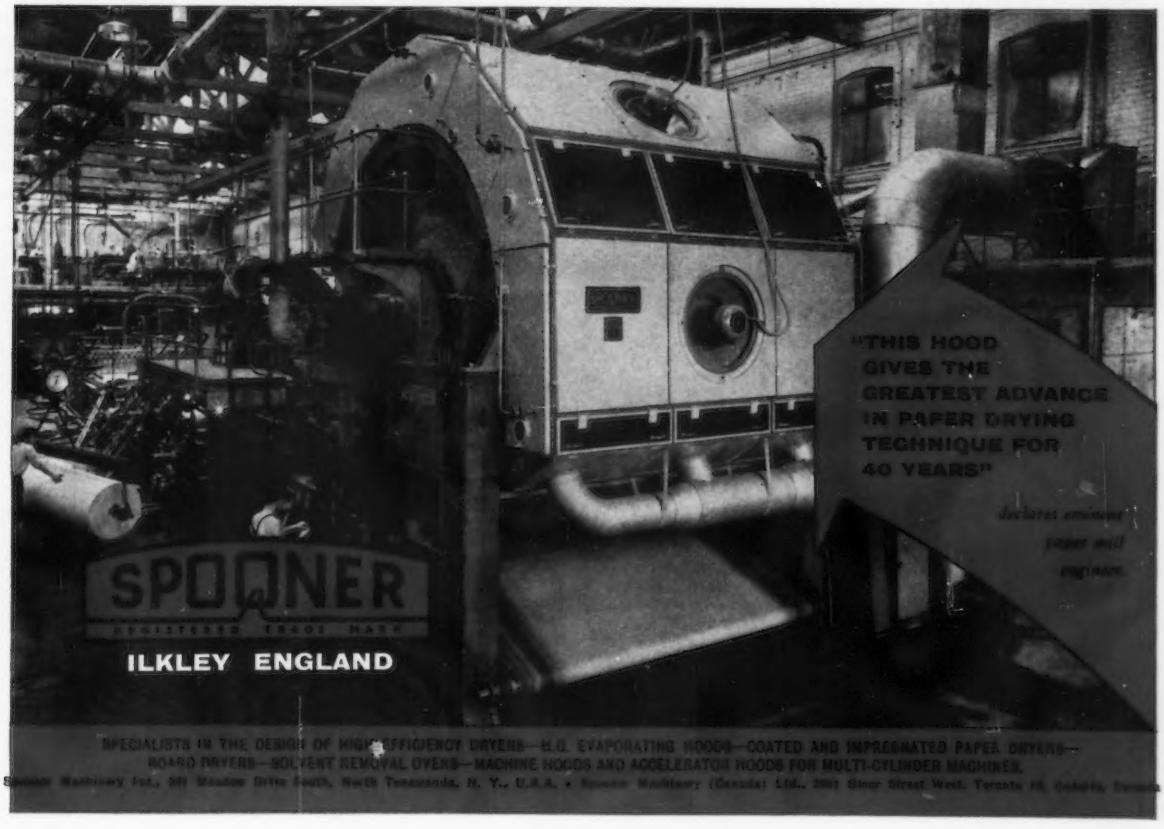
The line of small vacuum blowers provides more than 40 standard sizes currently offered for vacuum service. Larger, single-stage Roots Cycloidal units are rated up to 13,500 c.f.m. at vacuums to 22 inches Hg. Compound units deliver as much as 15,000 c.f.m. at 27 inches Hg. For details write Roots-Connersville, Connersville, Indiana.

Latex Coating Applied Both Sides Simultaneously

Latest Potdevin Machine Co. development, the top and bottomside latex strip coater is designed for manufacturers of self-seal paper bands. A specially developed technique for quickly adjusting the coating locations of the bank of strip rollers permits making a wide range of self-seal bands for such diversified products as curtains, stockings, shirts, ties, yarn and paper currency, states Potdevin. Bands can be made up to 60-inches wide.

Sheets are manually fed into the coating section of the machine which automatically applies latex to top and bottomside of the material, then carries the sheets through electric ovens.

Coating is dry by the time the sheet reaches the end of the line for stacking. Automatic feeding can be furnished where production requirements are large. Production



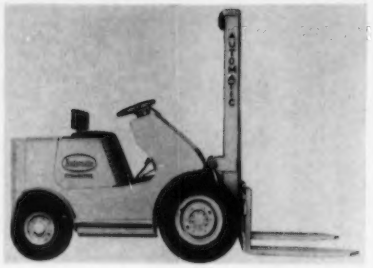
speeds of up to 100 f.p.m. are possible. It takes but a few minutes to changeover coating locations of the strip rollers.

The machine can also be used for applying remoistening strip glue to one side only. Coating thickness is adjustable depending on the material being coated. Variable speed control permits synchronization with other equipment. Adhesive tank is removable for cleaning. Strip rollers are available in any assorted widths. Complete information is available from the Potdevin Machine Co., 285 North St., Teterboro, N. J.

Fork Trucks With Pneumatic Tires

Automatic Transportation Co. has introduced two models of its gas-powered, electric-driven Dynamotive fork truck with all pneumatic tires: GLFP-40 (4000 lbs. cap., front drive wheels) and GLFP-60 (6000 lbs. cap., dual front drive wheels).

The 54 b.h.p. (at 2150 r.p.m.) gasolene engine transmits its power through a specially designed variable voltage generator to a matched d.c. series wound electric drive motor. Travel speed is reported to be 9



m.p.h. Other specifications furnished by the manufacturer are:

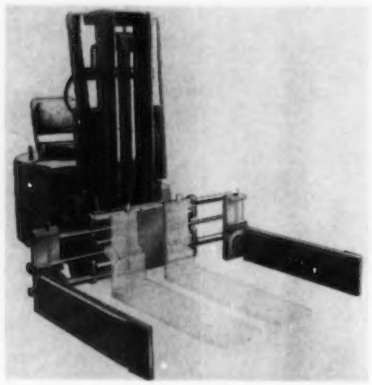
	Model 40	Model 60
Inch-lb. rating (at drive)	173,750	260,250
Lenth (in.)	97	101
Width (in.)	46	63
Wheel Base (in. ..	60	60
Turning radius (in.)	91	95
Intersecting isle (in.)	74	84
Rt. angle stacking (in.)	111	115
Height, lowered forks (in.)	87	87

Power steering and positive inching control are standard for both models. Clutches, fluid couplings, fluid torque converters, or multiple speed transmissions have not been engineered into the Dynamotive's drive. Brakes are of the hydraulic, expanding shoe type with 120 sq. in. areas. Bulletins 6008-AR (model 40) and 6009-AR (model 60) present more detailed specifications. Write to Automatic Transportation Co., 149 West 87th St., Chicago, Ill.

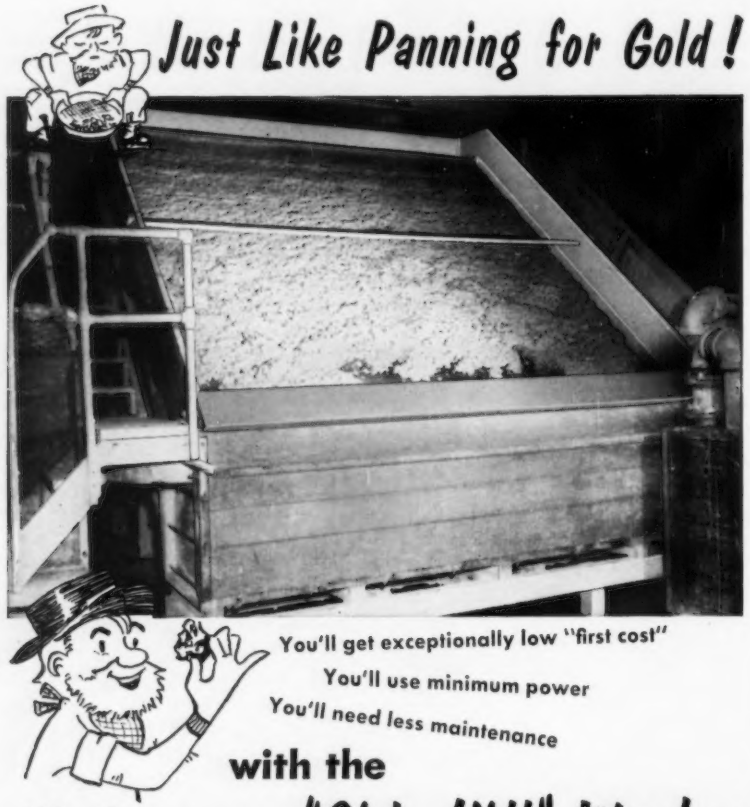
Forks Pivot to Side Load Grabs

A side shift load grab with lift-grip arms is now available from Lewis-Shepard Products, Inc., Watertown 72, Mass.

The Spacemaster Model "J" equipped with a Cascade Side Shift



Load Grab and Little Giant Grip-O-Lift arms can handle unit loads with or without pallets. In the clamping


Just Like Panning for Gold!
You'll get exceptionally low "first cost"
You'll use minimum power
You'll need less maintenance
with the
Kalamazoo "Side Hill" Washer
These practical slide washers give a better and more effective wash job than other washing methods. They may also be used as thickeners and saveralls. These units are designed by Kalamazoo engineers — experts in serving the paper industry for more than 90 years. Our experience enables us to completely prefabricate the units of top quality materials. Installation supervision can be furnished.
Laboratory size units are available for experimental purposes in determining the proper angle and screen mesh.
Write today for information on capacities and cost estimates.
WOOD TANK DIVISION
Kalamazoo TANK & SILO CO.
859 HARRISON ST.
KALAMAZOO, MICH.

Forester shoots cutting from a superior tree for use in grafting

Buckeye always aims high

Improvement is our goal . . . in forest, laboratory and mill

Today's best is not good enough for tomorrow at Buckeye. As a market pulp producer, our future is based on continued leadership in pulp improvement.

Throughout the Buckeye organization you see men dedicated to the development of pulps for the years to come. They are the research foresters seeking faster growing trees with special pulp characteristics. They are the chemists engaged in basic research for product improvement. They are the engineers setting up new and improved manufacturing processes.

For a dependable source of prime kraft, today and tomorrow, look to Buckeye . . . producer of outstanding pulps for the paper industry.

BUCKEYE
CELLULOSE CORPORATION
Memphis 8, Tenn.

Wood pulp plant at Foley, Florida
Cotton linters plant at Memphis

BUCKEYE

Bleached and Semi-Bleached
Kraft from Southern Pine

PULP

position they grip two or four drums, heavy cartons, bales boxes, crates, kegs or many other types of loads. By lifting the pin, the arms lay flat and can be used as forks to handle pallets. With the side shift load grab exact positioning of loads can be obtained, states L-S engineers.

Gripping surface is hard, smooth rubber bonded to steel sheets screwed to quarter-inch steel plates. These sheets can be quickly removed and replaced in a few minutes. For further information, write to Lewis-Shepard Products, Inc., Dept. R9-34, 125 Walnut Street, Watertown 72, Mass.

Looking for a new position?

Looking for new personnel?

Keep your eye on our Classified Advertising Section

High-Sensitivity Color Difference Meter

The instrument, model AC-2a, series 200 is suited to laboratory and production control work where minute color differences are deviations from standards must be detected. Laboratory uses include: detection of color differences due to new batch blending, aging, heat and light exposure; effects of various amounts of dyes or pigments; and analyses of the colorimetric aspects of chemical changes, oxidation, etc., upon various materials.

Quantitative comparison of two or more colors in terms of a three-number designation is rapidly obtained, states the manufacturer. Instrument precision, when dealing with small color intervals between spectrally nearly identical samples, is comparable to the smallest perceptible color difference discernible by the trained human eye of a color matcher.

The instrument indicates color difference on any of four tristimulus scales based on luminosity or reflectance. Tristimulus colorimetry means measuring a color so as to simulate the three responses of the human eye in distinguishing between hue, value and chroma. The three

TAILORED TO PAPER INDUSTRY NEEDS...

look to **WITCO** *for...*

Carbon Blacks There's a Witco-Continental Carbon Black exactly right for every pigment application in papers and coatings.

Stearates Witco manufactures a wide range of Stearates ...our technical service people will gladly help you choose the one most suited to your particular application.

Asphalts Whatever your needs, you'll find an economical solution in Witco's extensive line of Saturating and Laminating Asphalts.

Defoamers Eliminate your feedbox foaming problems ...Witco Defoamers No. 2A and No. 3 will do the job simply, quickly, economically.

Coating Formulation Additives For example, Witco Liquid #253 will make your coating formulations work faster and easier...saves you money and smooths your processing.

Write today for details of Witco products for the paper industry.

WITCO CHEMICAL COMPANY

122 East 42nd Street, New York 17, N.Y.

Boston • Chicago • Akron • Atlanta • Houston • Los Angeles • San Francisco
Oakville, Ontario • London and Manchester, England

TEST TIPS

FROM THE SCOTT LABORATORY

MEASURE INTERNAL BOND STRENGTH

with the Scott Model B Tester

Designed cooperatively by Sisalkraft Corp. and Scott Testers, Inc., the Model B Tester offers a faster and simpler method of determining the internal bond strength of paper products. A unique feature of the Model B on production and research work is that it enables the technician to prepare for accurate testing of *five* samples simultaneously. Each sample is split by the impact of a free-swinging pendulum. Direct reading of test values is indicated on a dial recorder. The tester is supplied complete with fixtures for preparing five samples, and two ranges, 0-.250 and .100-.500 ft. lbs. Get complete facts —write for Model B Brochure. SCOTT TESTERS, INC., 51 BLACKSTONE ST., PROVIDENCE, R. I.

SCOTT TESTERS

THE SURE TEST... SCOTT!

SCOTT TESTERS, Inc., 51 Blackstone Street, Providence, Rhode Island

Third Unit now on Order

B&W High Pressure, High Temperature Boilers for International Paper

Two Recovery, Two Power Units Now on Stream at Pine Bluff, Arkansas Mill

This is International Paper Company's new bleached board and newsprint mill near Pine Bluff, Arkansas. The 60,000 kw power demand, process steam requirements, plus rising fuel costs prompted the selection of high pressure, high temperature steam generating equipment.

Four B&W Boilers—two power and two recovery units—supply steam at the rate of 1,300,000 pounds per hour. The Cyclone Furnace fired power boilers burn bark, oil, coal, or natural gas alone or in combination. Each generates 450,000 pounds of steam per hour at 1275 psi and 1000 F. The recovery units are designed to process 1,170,000 pounds of black liquor solids per day and produce 202,000 pounds of steam per hour at 1275 psi and 900 F. For efficient heat recovery, they're equipped with economizers, tubular air heaters, and Venturi Evaporator-Scrubbers which reduce exit gas temperatures to 200 F.

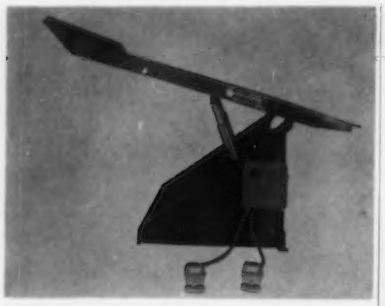
Pine Bluff's steam generating system is another example of B&W's ability to meet the rapidly increasing steam demands of the Pulp and Paper Industry. If you're thinking of building a new mill or expanding an old one, we can provide the economical solution to your steam generation and chemical recovery problems. Just write to the Babcock & Wilcox Company, Boiler Division, Barberton, Ohio.

P-823

B&W

THE BABCOCK & WILCOX COMPANY

BOILER DIVISION



THE "MURCO" BALE LIFTER actually works in reverse of the Murco hydraulic roll lowering table, announces D. J. Murray Manufacturing Co., Wausau, Wis. With a table 80 inches wide by 84 inches long it raises the paper bale a distance of 40 inches from the floor; lifting capacity, 5000 pounds. In its operation the bale elevator is used to lift and dump paper bales into a pulper; the table is raised and lowered by foot controlled switches. The table tilts 45 degrees beyond the horizontal center line. The hydraulic unit is equipped with a 3 h.p. Motor

automatic null balance circuits which produce exact measurements of: 1. Whiteness vs. Blackness; 2. Redness vs. Greenness; 3. Yellowness vs. Blueness; use an electronic amplifier and three balancing motors to turn three potentiometers to corresponding dial values. Further information is available from: Gardner Laboratory Inc., P.O. Box 5728, Bethesda 14, Md.

Gearmotor Drive Line Expanded

The Falk Corp., Box 492, Milwaukee 1, Wis., has extended its All-Motor horizontal Motoreducer line by adding the size 8E, with output speeds of 1 to 520 r.p.m. and horsepowers from 1 to 75. This drive incorporates the features of the original All-Motor line: all-steel housing, large overhung load capacity, positive lubrication, 98½ per cent efficiency per gear mesh and high pressure angle gear teeth.

The Motoreducers are available open or totally enclosed. Approximate size of the 1-h.p. open motor is 49 x 30 x 26 inches; of the 75-h.p. open motor, 71 x 30 x 26 inches. The respective weights for the 1- and 75-h.p. motors are: open, 95 lbs. and 1422 lbs.; enclosed, 125 lbs. and 2043 lbs. Vertical, right angle, and integral types are also available. Bulletins 3100, 3100.01, and 3101 present complete details.

Prices of Fibers

MARKET WOOD PULP

FOURTH QUARTER CONTRACT PRICES PER SHORT AIR-DRY TON

Delivered Basis

	U.S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$ 82.50/ 90.00	$ 82.50/ 90.00	§$90.00/ —	§$80.00/ —	§$90.00/ —
Bleached Gw'd	$ 97.50/100.00	$ 97.50/100.00			
Kraft, Blchd.	157.00/ —	160.00/162.50	§157.00/162.50*		§157.50/ —
Kraft, Blchd. Hdwd.	152.00/ —		§137.00/ —		
Kraft, Semi-bleached.	140.00/ —	140.00/ —			
Kraft, Unbl.	117.50/125.00	125.00/130.00	†125.00/130.00	125.00/ —	
Sulphite, Blchd.	155.00/ —	155.00/ —	*155.00/ —	*155.00/ —	155.00/ —
Sulphite, Bl. Hdwd.	150.00/ —				
Sulphite, Unblchd	135.00/ —	135.00/ —	†135.00/ —	*135.00/ —	
Sulphite, Unb'l. Gl'sn		140.00/ —	†134.00/ —		
Soda, Blchd.	147.00/150.00	150.00/ —			

§ On Dock Atlantic Ports. * Freight allowed. † Varying Freight Allowances.

COTTON LINTERS

F.O.B. OIL MILLS
WEEK ENDED NOVEMBER 3

	Atlanta	Memphis	Dallas	Los Angeles
Grade 1	n.a.	n.a.	n.a.	n.a.
2	$8.00/7.50	n.a.	n.a.	$7.75/7.50
3	7.50/6.00	$8.00/7.00	$6.75/6.50	7.25/7.00
4	6.00/5.25	6.25/5.75	6.25/5.25	6.75/6.25
5	5.25/4.75	5.00/4.75	4.75/4.50	6.00/5.60
6	4.75/3.50	4.50/4.25	4.00/3.25	5.00/3.75
7	3.50/2.50	3.50/2.75	3.00/2.75	3.00/2.75

WASTE PAPER MARKET

Mill Prices, f.o.b. Trucks Shipping Point — Includes Brokerage

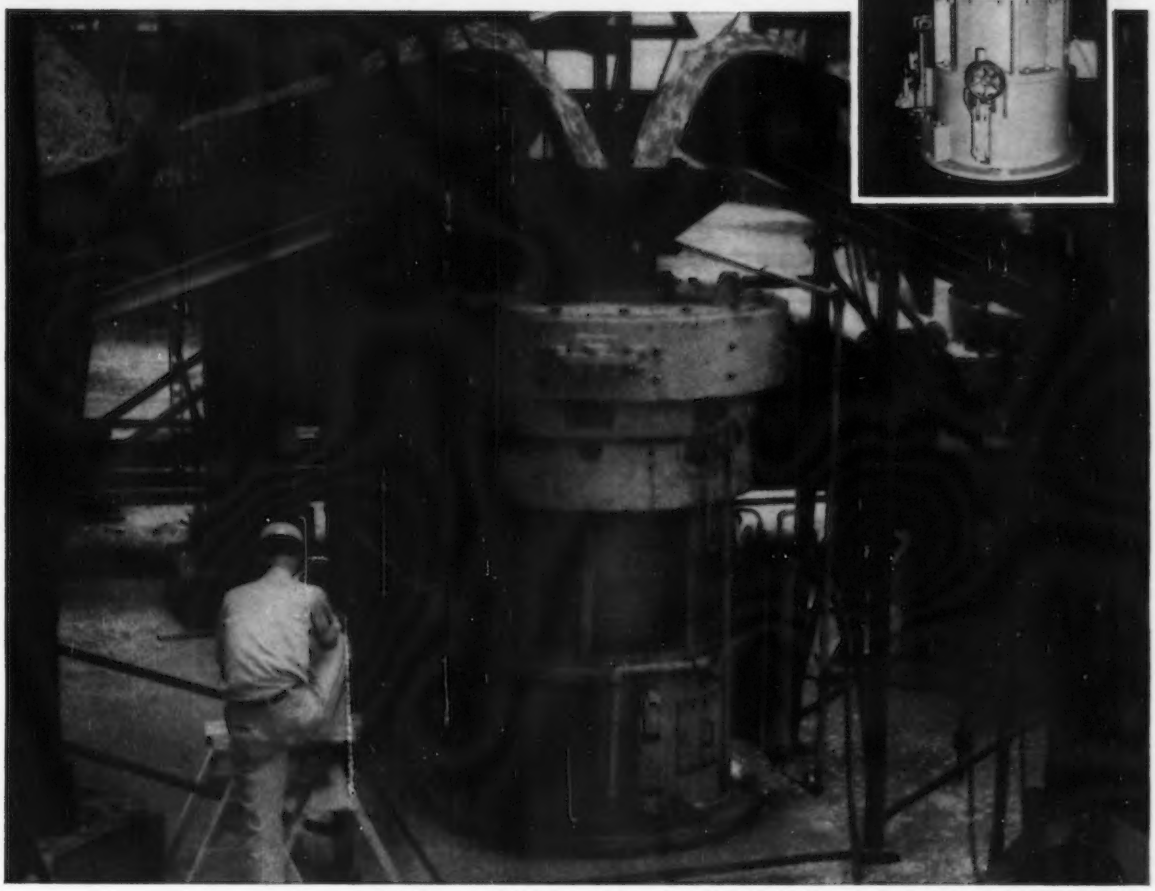
These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers and brokers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal.

	New York	Boston	Chicago	Los Angeles
	Nov. 9	Nov. 9	Nov.	Nov.
No. 1 Mixed Paper	$ 10.00/ 12.00	12.00/ 14.00	9.00/ —	13.00/ 14.00
No. 1 News	14.00/ 15.00	14.00/ 15.00	16.00/ —	16.00/ —
Overissue News (Lg. size)	13.00/ 15.00	13.00/ 15.00	21.00/ —	19.00/ 20.00
Mill Wrappers	19.00/ 22.00	13.00/ 15.00	14.00/ —	15.00/ —
Old Corrugated Containers	24.00/ 25.00	23.50/ 24.00	21.00/ —	23.00/ —
Super Resorted Kraft Paper	35.00/ 40.00	— / —	30.00/ —	55.00/ —
New Double Kr. Ld. Corr. Cuts	35.00/ 37.50	37.50/ —	35.00/ —	35.00/ —
(Semi-chem. medium)	47.50/ —	47.50/ —	45.00/ —	36.00/ —
New 100% Kraft Corr. Cuts	40.00/ 42.50	— / —	57.50/ —	— / —
New Br. Kraft, Env. Cuts	70.00/ 75.00	70.00/ 75.00	52.50/ —	55.00/ —
New Br. Kr. Bag Waste Prntd.	55.00/ 60.00	55.00/ 60.00	52.50/ —	55.00/ —
New Br. Kr. Bag Waste Unprintd	60.00/ 65.00	65.00/ 75.00	60.00/ —	60.00/ —
No. 1 Groundwood Shvs.	25.00/ 30.00	25.00/ 30.00	24.00/ —	35.00/ —
White Newsblanks	65.00/ 70.00	53.50/ 60.00	45.00/ —	60.00/ —
No. 1 Soft White Shvs.	60.00/ 65.00	60.00/ 65.00	60.00/ —	70.00/ —
Super Soft White Shvs.	65.00/ 75.00	75.00/ 85.00	70.00/ —	— / —
Hd. White Shvs.	85.00/ 90.00	90.00/100.00	85.00/ —	95.00/ —
Hd. White Env. Cuts	100.00/105.00	105.00/110.00	90.00/ —	113.00/ —
Col. Tab. Cards	55.00/ 57.50	55.00/ 57.50	52.50/ —	42.50/ 45.00
Manila Tab. Cards	77.50/ 80.00	77.50/ 80.00	75.00/ —	70.00/ —
No. 1 Col. Ledger	40.00/ 45.00	37.50/ 42.50	47.50/ —	35.00/ —
White Ledger	60.00/ 62.50	60.00/ 65.00	57.50/ —	55.00/ —
Mixed Book & Mag.†	22.00/ 25.00	— / —	17.00/ —	— / —
No. 1 Books‡	23.00/ 25.50	17.00/ 19.00	35.00/ —	17.50/ 19.50

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% of groundwood.

For primary refining at low power...

New Jones Vertiflex



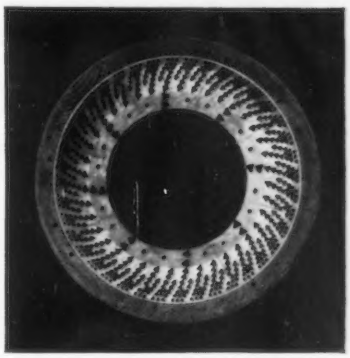
Vertiflex requires minimum floor space. Available in two disc sizes — 48" (shown here) and 34".

Typical application..... Chip Shredding

High quality pulp with extremely low waste and fibre damage, substantial savings in alkali used, increased yield, decreased screen rejects and lower recovery system loading — those are the results from this efficient Jones Vertiflex chip shredding installation. And energy required to process more than 2000 B.D. tons per day is just over ¼ HP days per ton!

Full size chips are fed to the Vertiflex by belt conveyors from two chip silos. Resulting "shreds" are as long as the original chips, but greatly reduced in cross section.

Other applications on which the Jones Vertiflex will perform with outstanding efficiency include cold caustic chips, high yield pulps, bagasse, high density bleaching and denoodling. For full details write to E. D. Jones Corporation, Pittsfield, Mass.



Teeth in vertically mounted rotating disc inter-mesh with teeth in opposing stationary plate mounted in Vertiflex cover. Clearance is easily adjustable and disc life is high since there is never any metal-to-metal contact. Teeth shape and arrangements are varied to fit the application.

E. D. JONES CORP. member BELOIT group PITTSFIELD, MASS.

Jones

PULP MILL EQUIPMENT AND STOCK PREPARATION MACHINERY

Represented in Canada by
The Alexander Fleck Ltd.
75 Spencer Street, Ottawa

RODNEY HUNT

SHAF-TITE® ROLLS

METAL ▪ RUBBER ▪ WOOD ▪ PLASTIC

RODNEY HUNT MACHINE CO., 10 MAPLE ST., ORANGE, MASS.

FITCHBURG "RESISTO"
Stainless Steel Screen Plates

Simple Construction:
Heavy one-piece steel plate.
One-piece Bronze "shock-absorber" grid frame.
Joined with forged-in Inconel rivets. (no welding)

Highest Capacity: Cut with our famous "DUPLEX SLOTS," giving top screening capacity.

Instantly Interchangeable: With any standard 3/8" Bronze plates either Drilled or Beveled edge.
Also available 5/8" thick for "T"-Bar installation.

Back view showing simple, rugged, two-piece construction.

FITCHBURG
Screen Plate Co., Inc.
301 South St., Fitchburg, Mass.

LUNKENHEIMER
Maintenance-Free
BRONZE COCKS
GAS • LIQUID AIR • STEAM

Fig. 479 Fig. 278 Fig. 177

Stop leakage! Cut repairs and replacement costs! Bodies of Lunkenheimer T-1 Bronze (A.S.T.M. B62) with keys and plugs of high-strength H-1 Bronze, stamp these as the cocks you can install and forget.

2-3-4-Way • Gasoline Drain • Bibb Nose • Straightway
Pet • Flat Head • Spring Key • 2-3-4-Port
Steam Gauge • Packed Plug

Write for detailed literature

THE LUNKENHEIMER CO., CINCINNATI, OHIO

LUNKENHEIMER®
THE ONE *Great* NAME IN VALVES
L-557-16

Another Plant To Serve You

SHIP US IN
KALAMAZOO

PACKING PLANTS
CHICAGO, ILL.
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KALAMAZOO, MICH.
LOUISVILLE, KY.

THOMAS PAPER STOCK CO.
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Wherever paper is made

GUARTEC

is making it better!

General Mills, Inc.

PRODUCTS CONTROL

• • •

QUALITY AND UNIFORMITY *INSURED*

N E W S

GENERAL MILLS' guar gum, GUARTEC, gives ***kraft liner board*** greater mullen strength —helps it take the rugged handling and abuse it's designed for.

And because you can use long-fibered, fast-draining pulp when you employ GUARTEC—you can get faster machine speeds, less refining—better economy. For the complete GUARTEC story, simply contact us and a GUARTEC Paper Industry Specialist will call on you at your convenience.

SPECIAL COMMODITIES DIVISION General Mills

MINNEAPOLIS 26, MINNESOTA

How do you rate calender roll performance?

"... on long service life"

An easy-to-make test proves the extra service life of Butterworth Dura-Smooth Calender Rolls.

Put one Butterworth Refill in the stack with any other roll. Carefully rate it under operating conditions. Check the finish it turns out. Time it to determine how many hours of service it gives without refilling or turning down. Results inevitably lead to standardizing on Butterworth Calender Rolls.

Why not rate your present calender rolls against a Butterworth Refill? Made of top quality, high rag content paper, Butterworth Calender Rolls meet your specifications. They're pretested for hardness, smoothness and density before delivery.

Write for quotation on new or refilled Butterworth Calender Rolls. They are furnished for all makes of calenders.

VN

H. W. BUTTERWORTH & SONS CO.

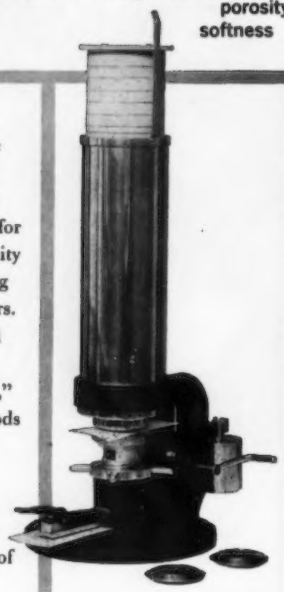
Bethayres, Pa.

Division of Van Norman Industries, Inc.

BUTTERWORTH

CALENDER ROLLS

1 INSTRUMENT *for Testing* smoothness porosity softness



Simply interchanging the lower test plates of the Gurley-Hill S-P-S Tester converts this instrument for testing smoothness, porosity or softness of any printing and most industrial papers. Meets TAPPI and ASTM "Suggested Method for Determining Smoothness," as well as standard methods for finding air resistance or porosity.

Write for Bulletin 1400, describing complete line of Gurley paper testers.

W. & L. E. Gurley, *520 Fulton Street, Troy, N.Y.*

Waldorf

INDUSTRIAL CONTROLS

A DIVISION OF F. C. HUYCK & SONS

AUTOMATIC PAPER INSPECTION —

CICO LUMP DETECTOR
WALDORF HOLE DETECTOR

INQUIRIES ON PAPER INSPECTION INSTRUMENTATION WILL BE WELCOMED

755 PARK AVE.
HUNTINGTON STATION, N. Y.

PRICE & PIERCE
LTD.

WOODPULP

PAPER

LONDON
27 CLEMENTS LANE

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MONTREAL
SUN LIFE BLDG.

if it's done better with spray nozzles –

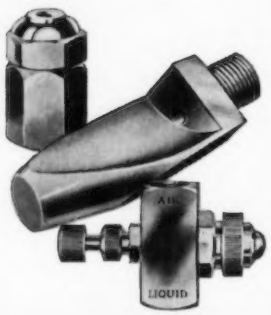
better best

it will be done **best** with
SPRAYING SYSTEMS CO.
SPRAY NOZZLES

HERE'S WHY:

1. You have a complete choice of **design types** to give the exact spray characteristics required.
2. You have thousands of **capacities** to choose from . . . for more exact volume control.
3. You have a complete choice of **materials** for chemical compatibility.

Your inquiry is invited.



SPRAYING SYSTEMS CO.
3220 Randolph Street
Bellwood, Ill.

For complete spray nozzle information write for Catalog 24.

PAPER TRADE JOURNAL

CLEARING HOUSE

HELP WANTED—$1.25 a line. Minimum charge $5.00.
SITUATIONS WANTED—$1.25 a line. Minimum charge $5.00. If repeated ½ rate will be charged for each consecutive repetition.
FOR SALE—$1.25 a line. Minimum charge $5.00.
WANTED—$1.25 a line. Minimum charge $5.00.
OPPORTUNITIES—$1.25 a line. Minimum charge $5.00.

Classified advertising space may also be purchased at $7.00 per single column inch. All classified advertisements are payable in advance.
If box number is used—75 cents additional
Address replies to advertisements appearing under Box Number in care of PAPER TRADE JOURNAL, 49 West 45th Street, New York 19, N. Y.

Help Wanted

PAPER MEN

$5,000 to $50,000

SALES • PRODUCTION • TECHNICAL

Finding and landing THE ONE BEST JOB requires sound analysis, careful planning, proper contacts and skillful negotiation.

Paper men ourselves, and the only recognized professional specialists in the world in our particular field, we assist responsible paper men to accelerate their careers by uncovering and developing THE SPECIFIC SITUATION that most exactly fits the needs of each individual we serve.

If you seek to better yourself, and your performance to date entitles you to our endorsement, we can and will help you. Contact us in absolute confidence for information regarding procedure.

GEO. M. SUNDAY & ASSO.

PERSONNEL CONSULTANTS TO THE PULP, PAPER & ALLIED INDUSTRIES

6 East Monroe, Chicago ANdover 3-1970

SALES ENGINEER

Experienced in instrumentation or process control equipment sales to pulp and paper mills. New York, New England or midwest territories open. Send complete education, experience and earnings resume. Box 59-317 care Paper Trade Journal. N-23

SENIOR PROCESS ENGINEER

For nationally known manufacturer of industrial and building products.

Require several years responsible charge of engineering applicable to processing of fibers to structural, insulation, acoustical and like products. Registered professional engineer desired with imagination tempered with experience.

This new position is with Central Engineering Department in growth Company.

Your resume, including salary requirements, will be reviewed in confidence and acknowledged.

Box 59-300 care Paper Trade Journal. N-16

Help Wanted

KRAFT PAPER MILL MANAGER

Mature, experienced specialty kraft paper maker with technical education or equivalent background wanted to manage high quality 2-machine Midwestern kraft paper mill located near a large city. Mill uses 100% purchased pulp, mostly Scandinavian.

He should be able to operate virtually independently with a minimum of supervision. This is an outstanding opportunity for the correct man. Remuneration, including pension and fringe benefits, depend upon experience and potential. All replies will be held confidential.

Please send full particulars including age, education, past and present experience, grades run and any other appropriate data to

Address Box 59-296 care Paper Trade Journal. N-16

Help Wanted

GRADUATE CHEMIST
or
CHEMICAL ENGINEER

For Pulp Mill located in Northwestern Ontario. Industrial experience required preferably in the pulp and paper industry. Must be capable of carrying out technical investigations with a minimum of supervision. Statistical background an asset.

Salary commensurate with past experience and ability. Excellent employee benefits, including Group Insurance and Pension Plans.

Please apply, giving full particulars of experience, education, age, marital status, salary expected, availability, etc. to Box 59-322 care Paper Trade Journal. N-16

WANTED

For 500 ton Kraft linerboard mill being built at Counce, Tennessee. Mill is located on Tennessee River just below Pickwick Dam, an area of pleasant living conditions with excellent recreational facilities. Mill is scheduled for operation January 1, 1961; however, we wish to fill the following positions immediately so that the men chosen can be in on the planning and installation stages.

POWER SUPERVISOR—Must be able to plan and organize Power Department; help select and train men; plan and direct efficient and safe operation of power and recovery boiler and related equipment. Will supervise combination gas and bark fired boiler and large recovery unit. Will report to Pulp Mill Superintendent. This position offers excellent opportunity for a competent power man to increase his knowledge of pulp mill operations, or to grow in the power plant field, as the mill expands.

INSTRUMENT SUPERVISOR—Must be able to plan and organize Instrument Department; help select and train men; supervise, plan and direct installation and maintenance activities of the department. Knowledge of current Kraft mill instrumentation is essential. Will report to Plant Engineer. This is an opportunity for a thoroughly experienced man to help select and install instrumentation and man a modern new mill.

Only well qualified men with Southern experience will be considered.

TENNESSEE RIVER PULP & PAPER COMPANY
P. O. BOX 33
COUNCE, TENN. N-23

Help Wanted Advertisements continued on page 82

PRODUCTION MANAGER
TECHNICAL DIRECTOR
and other senior staff

required by

a well designed and located, first class, versatile one machine

FINE PAPER MILL

now under construction at New Westminster,
British Columbia

If you would like to be a part of this operation right from the start, and grow with it, you are invited to write now in strictest confidence and fullest detail to the:

Fine Paper Division

POWELL RIVER COMPANY LIMITED
Standard Building, Vancouver 13, British Columbia

N-30

PROCESS ENGINEER

Consolidated Water Power & Paper Company is considering applications for the position of Process Engineer.

Our Process Engineers are part of the mill technical staff and operate as an integral part of production on problems involving quality control, wastes and efficiencies. These Engineers are assigned to specific areas in the mill such as Groundwood Pulping, Stock Blending, Papermaking and Coating, and are expected to provide guidance and technical advice to the operating personnel.

This Process Engineer should have an educational background in Paper Technology, Chemistry, or Chemical Engineering.

Two or three years experience in Process Engineering or mill technical service work in Groundwood Pulping, Chemical Pulping, and/or wet-end machine trials is necessary.

This position is located in Central Wisconsin.

Please send resume and application for interview to L. J. Barrette, Director of Personnel & Labor Relations, Consolidated Water Power & Paper Company, Wisconsin Rapids, Wisconsin.

D-7

Factory Representatives Wanted

Midwest concern manufacturing KNIFE GATE BONNETLESS STOCK VALVES for the paper-pulp industry seeks experienced men and/or sales organizations to handle valves and allied lines. Send experience resume or company history; state territory serviced and lines carried. Excellent opportunity for right parties. Box 59-319 care Paper Trade Journal. N-23

WANTED—Paper Mill Shift Boss for West Coast Newsprint Mill. Address Box 59-302 care Paper Trade Journal. N-16

L O O K through the columns of the CLEARING HOUSE

BARGAINS
IMMEDIATE DELIVERY

1—86" Farrel 8-Roll Calender Stack. A. F. Bearings. Full set of Doctors.
1—8" Pusey & Jones 7-Roll Calender Stack.
1—30" Dia. x 130" Face Farrel Roll Grinder., Complete.
1—5' x 86" Pusey & Jones Yankee Dryer.
1—92" Langston Winder equipped with both score and shear cut slitter devices.
1—86" Warren Winder Complete. Recently rebuilt with new drums and new A. F. Bearings and Housings.
1—110" Pusey & Jones 2-Drum Winder. A.F. Bearings.
1—84" Kamyr Machine. 75 Ton per day.
10—48" x 150" Pusey & Jones Dryers.
7—36" & 72" Pusey & Jones Dryers.
1—E. D. Jones Majestic Jordon No. A-482. S.S. Fillings.
1—74" Seybold Trimmer & Cutter. Z-12.
1—45" Seybold Trimmer & Cutter with 5 H.P. 220/440 Volt Motor. Rebuilt.
1—42" Dia. & 110" Face Pope Reel.
1—25" Dia. x 156" Perforated Face Sandusky Suction Couch. Complete.
1—22" Dia. x 138" Perforated Face Sandusky Suction Couch. Complete.
1—22" x 111" Vertical Size Press with Microrock and Rubber Rolls. A. F. Bearings with frame work. Pneumatically loaded.
1—24" x 102" Extractor Rolls. 20" Dia. Rubber Top Roll mounted with A. F. Bearings and Frame work. Spare Rolls.
1—22" x 96" First Press with Microrock Roll and Rubber Roll.
1—22" x 110" Press with Microrock Roll and Rubber Roll.
1—10-Knife Carthage Chipper with A. F. Bearings.
1—A.P.P. Rotary Centrifugal Pulp Screen. 40" Dia. x 42" Face. Serial #1274227.
1—#3A Bird Screen. S.S. Plates.
1—Hudson Sharpe Toilet Tissue Converting Machine. Serial #2123.
2—Packer 12-Plate Flat Screens. S.S. Bodies #.22 S.S. Plates. Less than 5 Years Old.
1—36" x 96" Saveall, Rubber Couch, S.S. Vat, A.F. Bearings.
1—Hummer Vibrating Screen.
1—Seybold Knife Grinder. Size G. 84" Table. Serial #4X802.
1—Sandy Hill Sulphur Burner. Complete.
1—54" Dia. x 48" Face Valley Iron Tub Beater.
1—53" Dia. x 66" Face Dilts 2000-lb. Iron Tub Beater with S.S. Hood.
16—Beater Rolls and Stands. Various Sizes.
5—Triplex and Duplex Pumps. Various Sizes.
1—DeZurick Consistency Regulator. Complete. One year old, never used.
1—8' x 10' Oliver Continuous Filter. Steel Tub.
1—100 H.P. Terry Turbine, Type G, 3615 RPM, 250 lbs. Steam Pressure. Back Pressure 35 lbs. Fully automatic with Terry Speed Reducer.
1—No. 2 Jones Pulper. A.F. Bearings. Spare Worm.
1—250 H.P. Ingersoll-Rand Diesel Engine Generator Set—G.E. Generator, 150 KW, 480 Volts, 720 RPM.
3—75 KVA G.E. Spirakore Transformers, Type HS, Class OA, 2400/4160 Y Primary to 120/240 Secondary.
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1—124″ Downingtown 5 roll
1—124″ Downingtown 6 roll
1—128″ Downingtown 7 roll

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2— 38″ Waldron Reverse Roll Coater w/drive
1— 54″ Mayer w/motor
1— 65″ Mayer w/drive
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3— 73″ face w/gears & bearings
3— 76″ face w/gears & bearings
3— 77″ face w/gears & bearings
2— 84″ face
2— 84″ face w/accessories
1—160″ face w/rope carriers

36″ Dia.:
1— 42″ face
2— 44″ face
2— 46″ face
22— 54″ face; complete section
4— 70″ face w/gears & bearings
11— 72″ face w/gears & bearings
1— 74″ face Lukenweld w/A-F Brng
1— 74″ face w/gears & bearings
3— 75″ face w/gears & bearings
9— 76″ face w/gears & bearings
1— 77″ face w/gears & bearings
1— 78″ face w/gears & bearings
2— 80″ face
5— 84″ face
3— 88″ face
18— 90″ face; complete section
1—138″ face
10—160″ face

42″ Dia.:
24—102″ face; complete section
1—106″ face
1—110″ face
40—118″ face; complete section
1—120″ face
1—160″ face

48″ Dia.:
57— 46″ face; chrome plated
1— 52″ face w/gears & bearings
1— 82″ face w/gears & bearings
24—110″ face w/frames & bearings
10—123″ face w/gears, frames & bearings
1—128″ face
12— 82″ face
5—84″ face

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1—Beloit 65 h.p. Ratio 2.88 to 1
1—Phila. 28 h.p. Ratio 10.56 to 1
1—M&W 25 h.p. Ratio 6.326 to 1

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1— 6′ face x 3′ dia Dorr-Oliver
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2— 12 Plate IMPCO w/Dunbar Drives
1— 4 plate Tailing Screen

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1—Horne w/AF Brngs

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1—24″ Downingtown Weiner; new
1—F24 Bauer w/50 h.p. motor

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6—18″ dia. x 132″ face
1—16″ dia. x 96″ face
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4—16″ dia. x 65″ face
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335 Miscellaneous sizes. Drawings available
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1—Jones Leithwalk copper lined

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1— 64″ Dillon
1— 80″ B-C heavy duty board model
1—157″ Masson-Scott; like new

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1— 42″ Essex duplex; 30″ dia rewind
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1— 42″ Cameron Type 28-3 Duplex; 30″ rewind
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1— 72″ Cameron Type 26-3A duplex
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1— 72″ Hudson-Sharp high speed automatic
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1— 72″ Cameron Type 10, shear cut; 30″ rewind
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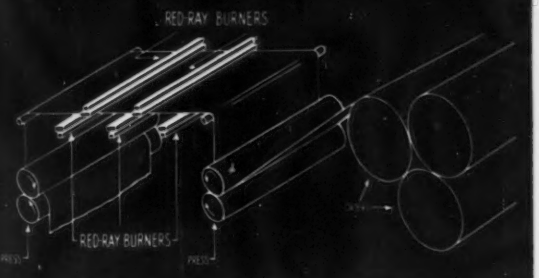

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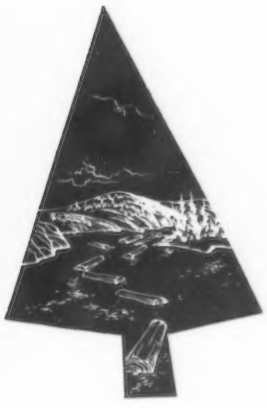

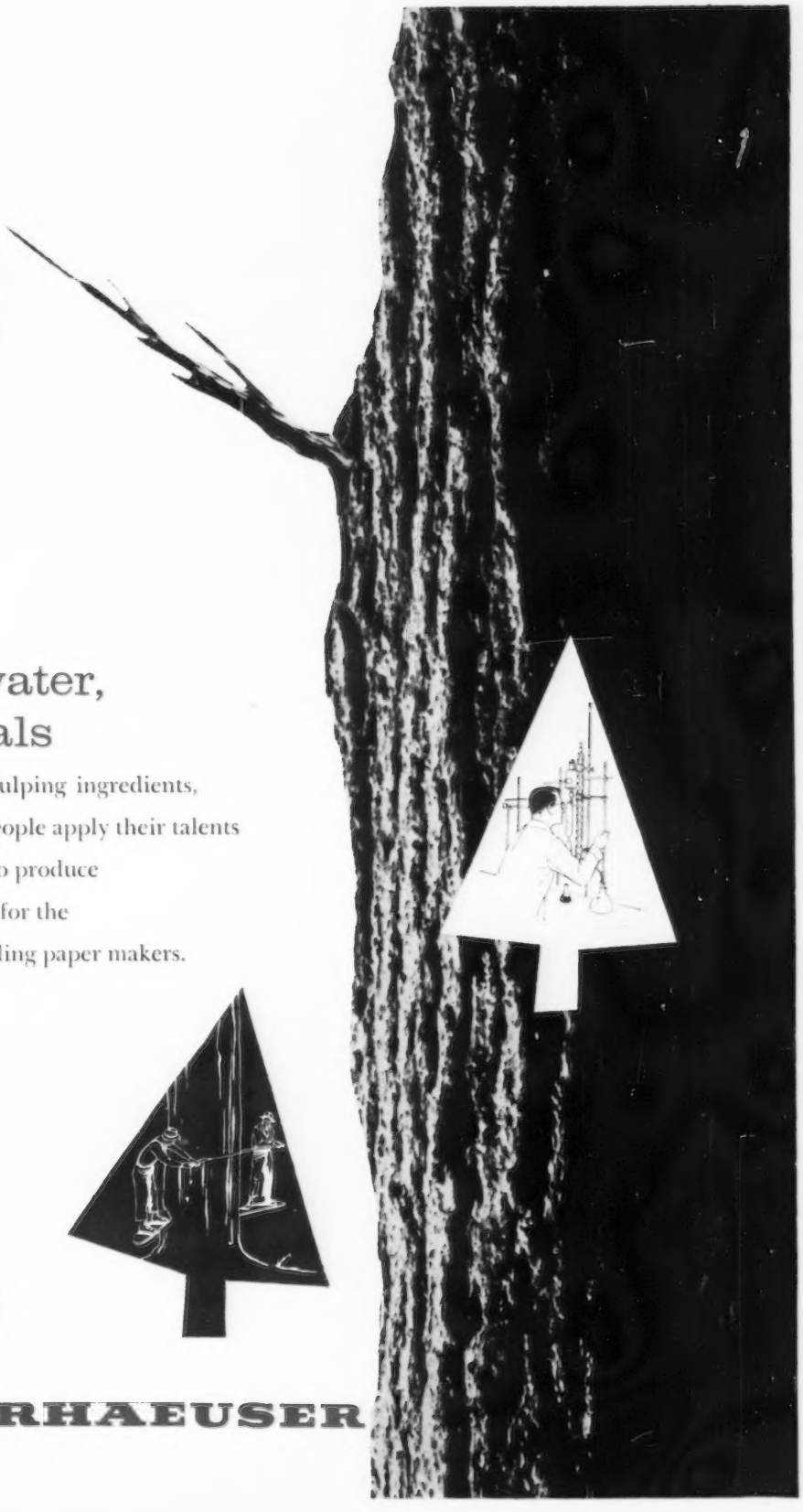

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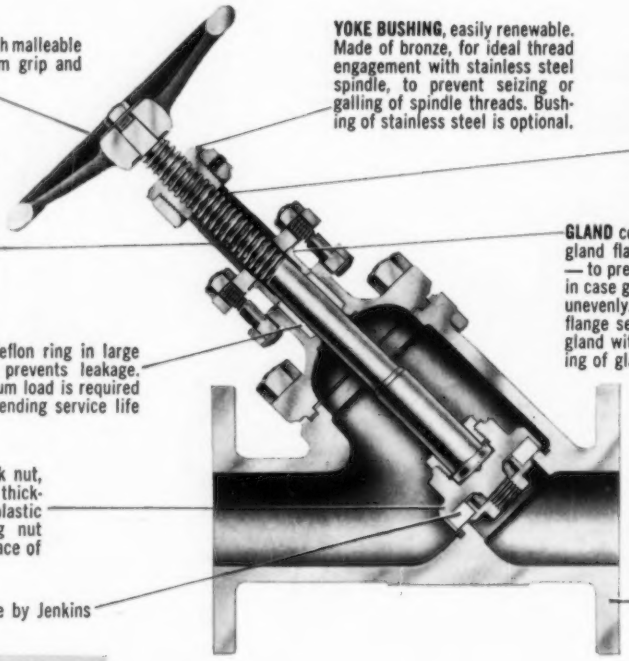

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